

SMITHSONIAN MATHEMATICAL TABLES

HYPERBOLIC FUNCTIONS

PREPARED BY

GEORGE F. BECKER AND C. E. VAN ORSTRAND



No 1871

CITY OF WASHINGTON
PUBLISHED BY THE SMITHSONIAN INSTITUTION
1909

ADVERTISEMENT.

Among the early publications of the Smithsonian Institution was a very important volume of meteorological tables by Dr. Arnold Guyot. They were so widely used by geographers and physicists as well as by meteorologists that when the fourth edition was exhausted it was decided to recast the entire work and publish three separate volumes, Meteorological Tables, Geographical Tables, and Physical Tables, each of which has now passed through several editions.

In the application of the data of these volumes to the study of natural phenomena certain mathematical tables beside those included in ordinary tables of logarithms are urgently needed in order to save recurrent computation on the part of observers and investigators. It was therefore decided to publish the present volume of Mathematical Tables, on Hyperbolic Functions.

Hyperbolic Functions are extremely useful in every branch of pure physics and in the applications of physics whether to observational and experimental sciences or to technology. Thus whenever an entity (such as light, velocity, electricity, or radioactivity) is subject to gradual extinction or absorption, the decay is represented by some form of Hyperbolic Functions. Mercator's projection is likewise computed by Hyperbolic Functions. Whenever mechanical strains are regarded as great enough to be measured they are most simply expressed in terms of Hyperbolic Functions. Hence geological deformations invariably lead to such expression, and it is for that reason that Messrs. Becker and Van Orstrand, who are in charge of the physical work of the United States Geological Survey, have been led to prepare this volume.

CHARLES D. WALCOTT, *Secretary*.

WASHINGTON, D. C., April, 1909.

In this first reprint of the Hyperbolic Functions a few misprints of trifling importance have been corrected and four values of the exponential have been changed by a unit in the eighth significant place.

April, 1911.

C. D. W.

In the second reprint of these Tables, several additional minor corrections have been made, usually in the last decimal place.

November, 1920.

C. D. W.

CONTENTS.

INTRODUCTION :		PAGE
Definitions and formulas		vii
Geometrical illustrations		xxviii
Methods of interpolation		xxxiv
Description of tables		xlili
Historical note		xlviii
TABLE I :		
Five place values of $\log \sinh u$, $\log \cosh u$, $\log \tanh u$, and $\log \coth u$		1
TABLE II :		
Five place values of $\sinh u$, $\cosh u$, $\tanh u$, and $\coth u$		87
TABLE III :		
Five place values of $\sin u$, $\cos u$, $\log \sin u$, and $\log \cos u$, u being expressed in radians and their angular equivalents		173
TABLE IV :		
The ascending and descending exponential to seven significant figures with $\log_{10} e^x$ to seven places		225
Nine place values of the same with ten place logarithms from $x = 1$ to $x = 100$		259
Auxiliary table of multiples of $\log_{10} e$ for interpolation of $\log_{10} e^x$		261
TABLE V :		
Five place values of natural logarithms		263
Interpolation coefficients for derivative formula		273
TABLE VI :		
The gudermannian of x to seven places in radians and to the same order of accuracy in degrees, minutes, and seconds		275
TABLE VII :		
The anti-gudermannian to hundredths of a minute in terms of the gudermannian expressed in degrees and minutes from $0^\circ 0'$ to $89^\circ 59'$. (This table is otherwise known as a table of meridional parts for a spherical globe)		309
TABLE VIII :		
Table for conversion of radians into angular measure and vice versa		320
Numerical constants		321

DEFINITIONS AND FORMULAS.

The hyperbolic functions are named the hyperbolic sine, cosine, tangent, cotangent, secant, and cosecant from their close analogy to the circular functions, the tangent being the ratio of the hyperbolic sine to the cosine and the other three functions being reciprocals of these, as in circular trigonometry. They are usually denoted by adding *h* to the symbols of the circular functions, as $\cosh u$ for the hyperbolic cosine of *u*, $\sinh u$ for the hyperbolic sine of *u*, etc.¹

Historically speaking, the hyperbolic functions were evolved from studies of the hyperbola. They might have been developed from the geometry of the ellipse or the catenary or that of other curves. These functions, however, may be considered independently of any geometrical interpretation and can be derived from very fundamental functional theorems.

At least two methods have been devised of defining circular and hyperbolic functions analytically. One of these is due to Mr. Yvon Villarceau,² and is so extremely brief that it can be given here in a somewhat modified form.

It has long been known that

$$e^{2\pi i u} = 1; e^{u + 2\pi i v} = e^u; e^{(u + 2\pi i v)i} = e^{iu}.$$

The second of these equations has a single imaginary period, $2\pi i$, and the third a single real period, 2π . Hence every exponential e^u in which *u* is real has a single imaginary period, $2\pi i$, and every exponential with the same base, but with an imaginary exponent, has a real period, 2π . Now, all real purely circular functions may be expressed in terms of constants and exponentials with purely imaginary exponents, and all real hyperbolic functions may be expressed in terms of constants and exponentials with exclusively real exponents.

Hence hyperbolic functions may be defined as the singly periodic exponential functions with real exponents. The circular functions are then the singly periodic exponential functions with imaginary exponents.

It remains to be considered how, from this point of view, the hyperbolic functions of complex variables are to be regarded. The question almost answers itself; for

$$e^{x+iy} = e^x \cdot e^{iy},$$

¹ More compendious and convenient, but less usual, is the notation employed by B. de Saint-Venant, $\sinh u$, $\cosh u$, $\tanh u$.

² *Comptes Rendus*, Paris, vol. 83, 1876, p. 594.

which is evidently the product of two functions—one circular, the other hyperbolic. Such functions have a real period and an imaginary one, but since they are single-valued they are not elliptic functions.

The circular and hyperbolic functions being defined as above, it is merely as a matter of convenience that a few of the simpler combinations of exponentials receive special names, as sine, cosine, etc.

The other analytical method of generalizing the two classes of functions is due to Edward Lœns,¹ and is too long to be given here in full, but the method may be indicated. If a and b are the two roots of the equation

$$x^2 - Px + Q = 0,$$

where P and Q are positive or negative whole numbers, then two functions may be defined as follows:

$$U_n \equiv \frac{a^n - b^n}{a - b}; \quad V_n \equiv a^n + b^n,$$

and these functions are related by the equation

$$U_m = U_n V_{m-n}.$$

Lœns develops and studies these functions, limiting n at first to whole positive numbers. He finds that all the theorems resulting from this study are converted into those of ordinary trigonometry when U is replaced by $2 \sin n$ and V by $2 \cos n$. He infers that between the limits 1 and minus 1, n may be replaced by any real value, and shows that the theorems dealing with U and V when translated into trigonometric formulæ on this assumption can be verified. By substituting for n an imaginary argument, the hyperbolic functions also are found to be comprehended in the general functions U and V .

Both the circular and hyperbolic functions may further be regarded as integrals of the equation

$$\frac{d}{dx} \log \frac{d^2 y}{dx^2} = \frac{d}{dx} \log y, \text{ or } \frac{d^2 y}{dx^2} = cy.$$

If $c = a^2$, this gives

$$\frac{y}{a} = Ae^{ax} + Be^{-ax},$$

where A and B are arbitrary constants; so that the integral expression includes $\sinh x$, $\cosh x$, and the sum or difference of these functions.

If $c = -b^2$,

$$\frac{y}{b} = A_1 \cos bx + B_1 \sin bx.$$

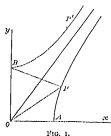
¹ Ann. Jour. of Math., vol. 1, 1878, p. 184.

The hyperbolic functions may also be defined geometrically with reference to any hyperbola.

Let $OA = a$, $OB = b$ be the semi-axes of the hyperbola AP , and its conjugate BP' referred to the rectangular axes ox and oy . The argument or independent variable x and its functions are then given by:¹

$$x = \frac{\text{sector } OAP}{\Delta OAB}, \quad \sinh x = \frac{\Delta OAP}{\Delta OAB'}$$

$$\cosh x = \frac{\Delta OPB}{\Delta OAB'} \text{ etc.}$$



The areas of the triangles OAB , OAP , and OPB are respectively $\frac{1}{2}ab$, $\frac{1}{2}ay$ and $\frac{1}{2}bx$, and the area of the sector OAP is found from the equation of the hyperbola,

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1,$$

to be

$$S = \frac{ab}{2} \log \left(\frac{x}{a} + \frac{y}{b} \right).$$

Hence, in accordance with the above definitions,

$$x = \frac{2S}{ab} = \log \left(\frac{x}{a} + \frac{y}{b} \right),$$

$$\sinh x = \frac{y}{b} = \frac{1}{2} (e^x - e^{-x}),$$

$$\cosh x = \frac{x}{a} = \frac{1}{2} (e^x + e^{-x}).$$

Similarly the argument and functions of circular trigonometry are:

$$\theta = \frac{2S}{a^2} = \frac{\text{arc}}{\text{radius}}$$

$$\sin \theta = \frac{y}{r} = \frac{1}{2} (e^{i\theta} - e^{-i\theta}),$$

$$\cos \theta = \frac{x}{r} = \frac{1}{2} (e^{i\theta} + e^{-i\theta}).$$

A comparison of the preceding equations shows that there exist between the two sets of arguments and functions many interesting analogies and relations. The arguments are in each case the ratio of two areas, although the argument of the circular functions may also be defined as a ratio of two lines;

¹ For definitions which are independent of the position of the sectorial areas see Prof. James McMahon's "Hyperbolic Functions" and a paper "On the Introduction of the Notion of Hyperbolic Functions," by Prof. M. W. Hinkell, Bull. Am. Math. Soc., vol. 1, 1894-95.

the hyperbolic functions stand in the same relation to the *equilateral* hyperbola as the circular functions do to the circle; each set of functions may be defined analytically as a particular branch of the theory of the exponential function, and it is possible to pass from the one to the other by means of the imaginary $i = \sqrt{-1}$. For example,

$$\begin{aligned}\sinh u &= -i \sin iu, \\ \cosh u &= \cos iu, \\ \tanh u &= -i \tan iu.\end{aligned}$$

Furthermore, every rational function of the hyperbolic functions and their inverses can be integrated by the help of corresponding known integrals of circular functions. Thus, to find $\int \operatorname{sech} u \, du$ from

$$\int \sec u \, du = \frac{1}{2} \log \frac{1 + \sin u}{1 - \sin u} = \log \frac{1 + i \tanh \frac{u}{2}}{1 - i \tanh \frac{u}{2}},$$

substitute iu for u and reduce to the form

$$\int \operatorname{sech} u \, du = \frac{1}{i} \log \frac{1 + i \tanh \frac{u}{2}}{1 - i \tanh \frac{u}{2}}.$$

If in this equation $\tanh \frac{u}{2}$ is replaced by y , the second member coincides in form with the expression for $2 \tan^{-1} y$ given below.

Hence

$$\int \operatorname{sech} u \, du = 2 \tan^{-1}(\tanh \frac{u}{2}) = u + \text{const.}$$

Similarly, when a differential is encountered the integral of which is not to be found in this collection, it is expedient to deduce the corresponding expression in cyclic functions by substitution of ix for x , etc., and then to make a search for its integral.

Most interesting is the relation existing between the formulae of spherical trigonometry and the formulae of Lobachevsky's imaginary geometry, hyperbolic geometry, or pseudo-spherical geometry, as it is sometimes called. Lobachevsky defines the angle CPA as the angle of parallelism, the line PC being the limiting position of PB when the distance AB is infinite. In this geometry two parallels, PC

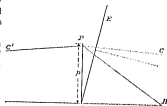


FIG. 2.

and PC , may be drawn from a point P to a line AB ; the sum of the angles of a triangle is less than two right angles, and the angle of parallelism $\Pi(\rho)$ is dependent upon the perpendicular distance ρ of the point P from the line AB . If now any line passing through A , such as AE , is extended until the perpendicular erected at its middle point is parallel to AB , the locus of the points E is a boundary curve, and the revolution of this curve about AB or one of its parallels develops a boundary surface. It is upon this surface of constant negative curvature that Lobachevsky imagines a triangle of sides a, b, c and angles A, B, C to be drawn. He establishes as fundamental relations between the sides and angles of this triangle¹

$$\begin{aligned}\sin A \tan \Pi(a) &= \sin B \tan \Pi(b) = \sin C \tan \Pi(c), \\ \sin \Pi(b) \sin \Pi(c) &= \sin \Pi(a) - \cos \Pi(b) \cos \Pi(c) \sin \Pi(a) \cos A, \\ \sin \Pi(a) \cos A &= -\cos B \cos C \sin \Pi(a) + \sin B \sin C,\end{aligned}$$

and also proves that

$$\begin{aligned}\sin \Pi(x) &= (\cos ix)^{-1} = (\cosh x)^{-1}, \\ \tan \Pi(x) &= i (\sin ix)^{-1} = (\sinh x)^{-1}, \\ \cos \Pi(x) &= -i \tan ix = \tanh x.\end{aligned}$$

Hence the preceding equations may be written

$$\begin{aligned}\frac{\sin A}{\sinh a} &= \frac{\sin B}{\sinh b} = \frac{\sin C}{\sinh c}, \\ \cosh a &= \cosh b \cosh c - \sinh b \sinh c \cos A, \\ \cos A &= -\cos B \cos C + \sin B \sin C \cosh a.\end{aligned}$$

These formulas are, in fact, precisely those of spherical trigonometry, in which the real sides a, b, c have been replaced by the imaginaries ia, ib, ic . If the triangle on the boundary surface is infinitesimal, the above equations reduce to the well-known relations between the sides and angles of a triangle on the Euclidean plane. The theorems of non-Euclidean geometry may not therefore be inconsistent with experience, for the largest triangle which we can measure is infinitesimal in comparison with a triangle on the boundary surface. Lobachevsky pointed out that a triangle on a boundary surface would correspond to a triangle connecting three stars in distant parts of the universe, and that the postulates of his geometry, involving as they do the question of the curvature of space, would be capable of experimental proof if the parallaxes of distant stars could be measured with sufficient accuracy.

Lastly, there is an important relation between the numerical values of the circular and hyperbolic functions. If the argument x assumes successive values between 0 and $+\infty$, $\sinh x$ assumes successive values between 0 and $+\infty$ just as $\tan x$ does when x varies from 0 to 90° ; $\cosh x$ assumes values between 1 and $+\infty$ like $\sec \beta$, and $\tanh x$ assumes values between 0 and 1

¹ H. P. Manning's *Non-Euclidean Geometry*, p. 60.

in the same way as $\sin \gamma$. The variation of the hyperbolic functions throughout the entire plane and their similarity to the circular functions between the

limits 0° and 180° is shown in the diagram. Since each of the functions is singly periodic, there must be a single value of α , β , γ corresponding to a particular value of u , such that

$$\sinh u \equiv \tan \alpha,$$

$$\cosh u \equiv \sec \beta,$$

$$\tanh u \equiv \sin \gamma.$$

It will be found by substituting in the trigonometric formulae that $\alpha \equiv \beta \equiv \gamma \equiv \phi$, and the required relations are therefore

$$\cosh u \equiv \sec \phi,$$

$$\sinh u \equiv \tan \phi,$$

$$\tanh u \equiv \sin \phi.$$

The angle ϕ which renders it possible to evaluate the hyperbolic functions by means of the circular functions is of great importance in pure and applied mathematics. Some of its properties and applications will be considered in the section on geometrical illustrations. It is called *gerdmannian* u and is written

$$\phi \equiv g d u.$$

The following list of formulae involving the hyperbolic functions might be greatly extended, but it includes the most useful relations.¹

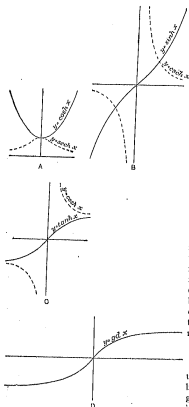


FIG. 3.

¹ Taken with additions from Prof. B. O. Peirce's *Short Table of Integrals*, and Prof. McMahon's *Hyperbolic Functions*.

A.—RELATIONS BETWEEN HYPERBOLIC AND CIRCULAR FUNCTIONS.

1. $\sinh u = -i \sin iu = \tan gd u,$
2. $\cosh u = \cos iu = \sec gd u,$
3. $\tanh u = -i \tan iu = \sin gd u,$
4. $\tanh \frac{1}{2} u = \tan \frac{1}{2} gd u,$
5. $e^u = (1 + \sin gd u) \div \cos gd u,$
 $= [1 - \cos (\frac{1}{2} \pi + gd u)] \div \sin (\frac{1}{2} \pi + gd u),$
 $= \tan (\frac{1}{2} \pi + \frac{1}{2} gd u),$
6. $\sinh iu = i \sin u,$
7. $\cosh iu = \cos u,$
8. $\tanh iu = i \tan u,$
9. $\sinh (u \pm iv) = \pm i \sin (v \mp iu),$
 $= \sinh u \cos v \pm i \cosh u \sin v,$
10. $\cosh (u \pm iv) = \cos (v \mp iu),$
 $= \cosh u \cos v \pm i \sinh u \sin v,$
11. $\cosh (m\pi) = \cos m\pi.$ (m is an integer.)
12. $\sinh (2m+1) \frac{1}{2} i\pi = i \sin (2m+1) \frac{1}{2} \pi.$ (m is an integer.)

B.—RELATIONS AMONG THE HYPERBOLIC FUNCTIONS.

13. $\sinh u = \frac{1}{2} (e^u - e^{-u}) = -\sinh (-u) = (\cosh u)^{-1},$
 $= 2 \tanh \frac{1}{2} u \div (1 - \tanh^2 \frac{1}{2} u) = \tanh u \div (1 - \tanh^2 u)^{\frac{1}{2}},$
14. $\cosh u = \frac{1}{2} (e^u + e^{-u}) = \cosh (-u) = (\operatorname{sech} u)^{-1},$
 $= (1 + \tanh^2 \frac{1}{2} u) \div (1 - \tanh^2 \frac{1}{2} u) = 1 \div (1 - \tanh^2 u)^{\frac{1}{2}},$
15. $\tanh u = (e^u - e^{-u}) \div (e^u + e^{-u}) = -\tanh (-u),$
 $= (\coth u)^{-1} = \sinh u \div \cosh u = (1 - \operatorname{sech}^2 u)^{\frac{1}{2}},$
16. $\operatorname{sech} u = \operatorname{sech} (-u) = (1 - \tanh^2 u)^{\frac{1}{2}},$
17. $\operatorname{csch} u = -\operatorname{csch} (-u) = (\coth^2 u - 1)^{\frac{1}{2}},$
18. $\coth u = -\coth (-u) = (\operatorname{csch}^2 u + 1)^{\frac{1}{2}},$
19. $\cosh^2 u - \sinh^2 u = 1,$
20. $\sinh \frac{1}{2} u = \sqrt{\frac{1}{2} (\cosh u - 1)},$
21. $\cosh \frac{1}{2} u = \sqrt{\frac{1}{2} (\cosh u + 1)},$
22. $\tanh \frac{1}{2} u = (\cosh u - 1) \div \sinh u,$
 $= \sinh u \div (1 + \cosh u) = \sqrt{(\cosh u - 1) \div (\cosh u + 1)},$
23. $\sinh 2u = 2 \sinh u \cosh u = 2 \tanh u \div (1 - \tanh^2 u),$
24. $\cosh 2u = \cosh^2 u + \sinh^2 u = 2 \cosh^2 u - 1,$
 $= 1 + 2 \sinh^2 u = (1 + \tanh^2 u) \div (1 - \tanh^2 u),$
25. $\tanh 2u = 2 \tanh u \div (1 + \tanh^2 u),$
26. $\sinh 3u = 3 \sinh u + 4 \sinh^3 u,$
27. $\cosh 3u = 4 \cosh^3 u - 3 \cosh u,$
28. $\tanh 3u = (3 \tanh u + \tanh^3 u) \div (1 + 3 \tanh^2 u),$

29. $\sinh nx =$
 $n \cosh^{n-1} u \sinh u + \frac{n(n-1)(n-2)}{6} \cosh^{n-3} u \sinh^3 u + \dots$
30. $\cosh nx = \cosh^n u + \frac{n(n-1)}{2} \cosh^{n-2} u \sinh^2 u + \dots$
31. $\sinh u + \sinh v = 2 \sinh \frac{1}{2}(u+v) \cosh \frac{1}{2}(u-v)$.
32. $\sinh u - \sinh v = 2 \cosh \frac{1}{2}(u+v) \sinh \frac{1}{2}(u-v)$.
33. $\cosh u + \cosh v = 2 \cosh \frac{1}{2}(u+v) \cosh \frac{1}{2}(u-v)$.
34. $\cosh u - \cosh v = 2 \sinh \frac{1}{2}(u+v) \sinh \frac{1}{2}(u-v)$.
35. $\sinh u + \cosh u = (1 + \tanh \frac{1}{2} u) : (1 - \tanh \frac{1}{2} u)$.
36. $(\sinh u + \cosh u)^n = \cosh nu + \sinh nu$.
37. $\tanh u + \tanh v = \sinh(u+v) : \cosh u \cosh v$.
38. $\tanh u - \tanh v = \sinh(u-v) : \cosh u \cosh v$.
39. $\coth u + \coth v = \sinh(u+v) : \sinh u \sinh v$.
40. $\coth u - \coth v = -\sinh(u-v) : \sinh u \sinh v$.
41. $\sinh(u \pm v) = \sinh u \cosh v \pm \cosh u \sinh v$.
42. $\cosh(u \pm v) = \cosh u \cosh v \pm \sinh u \sinh v$.
43. $\tanh(u \pm v) = (\tanh u \pm \tanh v) : (1 \pm \tanh u \tanh v)$.
44. $\coth(u \pm v) = (\coth u \coth v \pm 1) : (\coth v \pm \coth u)$.
45. $\sinh(u+v) + \sinh(u-v) = 2 \sinh u \cosh v$.
46. $\sinh(u+v) - \sinh(u-v) = 2 \cosh u \sinh v$.
47. $\cosh(u+v) + \cosh(u-v) = 2 \cosh u \cosh v$.
48. $\cosh(u+v) - \cosh(u-v) = 2 \sinh u \sinh v$.
49. $\tanh \frac{1}{2}(u+v) = (\sinh u + \sinh v) : (\cosh u + \cosh v)$.
50. $\tanh \frac{1}{2}(u-v) = (\sinh u - \sinh v) : (\cosh u + \cosh v)$.
51. $\coth \frac{1}{2}(u+v) = (\sinh u + \sinh v) : (\cosh u - \cosh v)$.
52. $\coth \frac{1}{2}(u-v) = (\sinh u - \sinh v) : (\cosh u - \cosh v)$.
53. $\frac{\tanh u + \tanh v}{\tanh u - \tanh v} = \frac{\sinh(u+v)}{\sinh(u-v)}$
54. $\frac{\coth u + \coth v}{\coth u - \coth v} = \frac{\sinh(u+v)}{\sinh(u-v)}$
55. $\sinh(u+v) + \cosh(u+v) = (\cosh u + \sinh u)(\cosh v + \sinh v)$.
56. $\sinh(u+v) \sinh(u-v) = \sinh^2 u - \sinh^2 v$
 $= \cosh^2 u - \cosh^2 v$.
57. $\cosh(u+v) \cosh(u-v) = \cosh^2 u + \sinh^2 v$
 $= \sinh^2 u + \cosh^2 v$.
58. $\sinh(mi\pi) = 0$, (m is an integer).
59. $\cosh(mi\pi) = (-1)^m$.
60. $\tanh(mi\pi) = 0$.
61. $\sinh(n + mi\pi) = (-1)^n \sinh n$.
62. $\cosh(n + mi\pi) = (-1)^n \cosh n$.
63. $\sinh(2m + i) \frac{1}{2} i\pi = \pm i$.

$$64. \cosh (2n + i) \frac{1}{2} i\pi = 0.$$

$$65. \sinh \left(\frac{i\pi}{2} \pm n \right) = i \cosh n.$$

$$66. \cosh \left(\frac{i\pi}{2} \pm n \right) = \pm i \sinh n.$$

$$67. \tanh (n + i\pi) = \tanh n.$$

C.—INVERSE HYPERBOLIC FUNCTIONS.

$$68. \sinh^{-1} u = \log (u + \sqrt{u^2 + 1}) = \cosh^{-1} \sqrt{u^2 + 1} = \int \frac{du}{(u^2 + 1)^{\frac{3}{2}}}.$$

$$69. \cosh^{-1} u = \log (u + \sqrt{u^2 - 1}) = \sinh^{-1} \sqrt{u^2 - 1} = \int \frac{du}{(u^2 - 1)^{\frac{3}{2}}}.$$

$$70. \tanh^{-1} u = \frac{1}{2} \log (1 + u) - \frac{1}{2} \log (1 - u) = \int \frac{du}{1 - u^2}.$$

$$71. \coth^{-1} u = \frac{1}{2} \log (1 + u) - \frac{1}{2} \log (u - 1) = \int \frac{du}{1 - u^2} = \tanh^{-1} \frac{1}{u}.$$

$$72. \operatorname{sech}^{-1} u = \log \left(\frac{1}{u} + \sqrt{\frac{1}{u^2} - 1} \right) = - \int \frac{du}{u(1 - u^2)^{\frac{3}{2}}} = \cosh^{-1} \frac{1}{u}.$$

$$73. \operatorname{csch}^{-1} u = \log \left(\frac{1}{u} + \sqrt{\frac{1}{u^2} + 1} \right) = - \int \frac{du}{u(u^2 + 1)^{\frac{3}{2}}} = \sinh^{-1} \frac{1}{u}.$$

$$74. \sin^{-1} u = -i \sinh^{-1} iu = -i \log (iu + \sqrt{1 - u^2}).$$

$$75. \cos^{-1} u = -i \cosh^{-1} u = -i \log (u + i \sqrt{1 - u^2}).$$

$$76. \tan^{-1} u = -i \tanh^{-1} iu = \frac{1}{2i} \log (1 + iu) - \frac{1}{2i} \log (1 - iu).$$

$$77. \cot^{-1} u = i \coth^{-1} iu = \frac{1}{2i} \log (iu - 1) - \frac{1}{2i} \log (iu + 1).$$

$$78. \sin^{-1} iu = i \sinh^{-1} u = i \log (u + \sqrt{1 + u^2}).$$

$$79. \cos^{-1} iu = -i \cosh^{-1} iu = \frac{\pi}{2} - i \log (u + \sqrt{1 + u^2}).$$

$$80. \tan^{-1} iu = i \tanh^{-1} u = \frac{i}{2} \log (1 + u) - \frac{i}{2} \log (1 - u).$$

$$81. \cot^{-1} iu = -i \coth^{-1} u = -\frac{i}{2} \log (u + 1) + \frac{i}{2} \log (u - 1).$$

$$82. \cosh^{-1} \frac{1}{2} \left(n + \frac{i}{n} \right) = \sinh^{-1} \frac{1}{2} \left(n - \frac{i}{n} \right) = \tanh^{-1} \frac{n^2 - 1}{n^2 + 1} \\ = 2 \tanh^{-1} \frac{n - 1}{n + 1} = \log n.$$

$$83. \tanh^{-1} \tanh u = \frac{1}{2} \pi d^2 u.$$

$$84. \tan^{-1} \tanh u = \frac{1}{2} \pi d^{-1} u.$$

$$85. \cosh^{-1} \csc 2u = -\sinh^{-1} \cot 2u = -\tanh^{-1} \cos 2u = \log \tan u.$$

$$86. \tanh^{-1} \tanh^2 \left(\frac{1}{2} \pi + \frac{1}{2} n \right) = \frac{1}{2} \log \csc n.$$

$$87. \tanh^{-1} \tanh^2 \frac{1}{2} n = \frac{1}{2} \log \sec n.$$

$$88. \cosh^{-1} u \pm \cosh^{-1} v = \cosh^{-1} [uv \pm 1/\{u^2 - 1\} \{v^2 - 1\}].$$

$$89. \sinh^{-1} u \pm \sinh^{-1} v = \sinh^{-1} [u \sqrt{1 + v^2} \pm v \sqrt{1 + u^2}].$$

D.—SERIES.

$$90. e^x = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots \quad (x^2 < \infty.)$$

$$91. \log x = (x-1) - \frac{1}{2}(x-1)^2 + \frac{1}{3}(x-1)^3 - \dots \quad (x > 0.)$$

$$92. \log x = \frac{x-1}{x} + \frac{1}{2} \left(\frac{x-1}{x} \right)^2 + \frac{1}{3} \left(\frac{x-1}{x} \right)^3 + \dots \quad (x > \frac{1}{2}.)$$

$$93. \log x = 2 \left[\frac{x-1}{x+1} + \frac{1}{3} \left(\frac{x-1}{x+1} \right)^3 + \frac{1}{5} \left(\frac{x-1}{x+1} \right)^5 + \dots \right] \quad (x > 0.)$$

$$94. \log (1+x) = x - \frac{1}{2}x^2 + \frac{1}{3}x^3 - \frac{1}{4}x^4 + \dots \quad (x^2 < 1.)$$

$$95. \log \left(\frac{1+x}{1-x} \right) = 2 \left[x + \frac{1}{3}x^3 + \frac{1}{5}x^5 + \frac{1}{7}x^7 + \dots \right] \quad (x^2 < 1.)$$

$$96. \log \left(\frac{1+x}{x-1} \right) = 2 \left[\frac{1}{x} + \frac{1}{3} \left(\frac{1}{x} \right)^3 + \frac{1}{5} \left(\frac{1}{x} \right)^5 + \dots \right] \quad (x^2 > 1.)$$

$$97. \sinh x = x + \frac{x^3}{3!} + \frac{x^5}{5!} + \frac{x^7}{7!} + \dots \quad (x^2 < \infty.)$$

$$= x \left(1 + \frac{x^2}{2^2} \right) \left(1 + \frac{x^2}{2^2 \cdot 4^2} \right) \left(1 + \frac{x^2}{3^2 \cdot 6^2} \right) \dots \quad (x^2 < \infty.)$$

$$98. \cosh x = 1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \frac{x^6}{6!} + \dots \quad (x^2 < \infty.)$$

$$= \left(1 + \frac{4x^2}{3^2} \right) \left(1 + \frac{4x^2}{3^2 \cdot 5^2} \right) \left(1 + \frac{4x^2}{5^2 \cdot 7^2} \right) \dots \quad (x^2 < \infty.)$$

$$99. \tanh x = x - \frac{1}{3}x^3 + \frac{2}{15}x^5 - \frac{17}{315}x^7 + \dots \quad (x^2 < \frac{1}{4} \pi^2.)$$

$$100. x \coth x = 1 + \frac{1}{3}x^2 - \frac{1}{45}x^4 + \frac{2}{945}x^6 - \dots \quad (x^2 < \pi^2.)$$

$$101. \operatorname{sech} x = 1 - \frac{1}{2}x^2 + \frac{5}{24}x^4 - \frac{61}{720}x^6 + \dots \quad (x^2 < \frac{1}{4} \pi^2.)$$

$$102. x \operatorname{csch} x = 1 - \frac{1}{6}x^2 + \frac{7}{360}x^4 - \frac{31}{15120}x^6 + \dots \quad (x^2 < \pi^2.)$$

$$103. g^2 x = \phi = x - \frac{1}{6}x^3 + \frac{1}{24}x^5 - \frac{61}{5040}x^7 + \dots \quad (x \text{ small,})$$

$$= \frac{\pi}{2} - \operatorname{sech} x - \frac{1}{2} \frac{\operatorname{sech}^3 x}{3} - \frac{1}{2 \cdot 4} \frac{\operatorname{sech}^5 x}{5} - \dots \quad (x \text{ large,})$$

$$104. u = g^{d-1} \phi = \phi + \frac{1}{6} \phi^3 + \frac{1}{24} \phi^5 + \frac{61}{5040} \phi^7 + \dots \quad \left(\phi < \frac{\pi}{2} \right)$$

$$105. \sinh^{-1} u = u - \frac{1}{2} \frac{u^3}{3} + \frac{1}{2} \frac{3}{4} \frac{u^5}{5} - \frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{u^7}{7} + \dots \quad (u^2 < 1.)$$

$$= \log 2u + \frac{1}{2} \frac{1}{2u^2} - \frac{1}{2} \frac{3}{4} \frac{1}{4u^4} + \frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{1}{6u^6} - \dots \quad (u^2 > 1.)$$

$$106. \cosh^{-1} u = \log 2u - \frac{1}{2} \frac{1}{2u^2} - \frac{1}{2} \frac{3}{4} \frac{1}{4u^4} - \frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{1}{6u^6} - \dots \quad (u^2 > 1.)$$

$$107. \tanh^{-1} u = u + \frac{1}{3} u^3 + \frac{1}{5} u^5 + \frac{1}{7} u^7 + \dots \quad (u^2 < 1.)$$

$$108. \coth^{-1} u = \tanh^{-1} \frac{1}{u} = \frac{1}{u} + \frac{1}{3u^3} + \frac{1}{5u^5} + \frac{1}{7u^7} + \dots \quad (u^2 > 1.)$$

$$109. \operatorname{sech}^{-1} u = \cosh^{-1} \frac{1}{u} = \log \frac{2}{u} - \frac{1}{2} \frac{u^2}{2} - \frac{1}{2} \frac{3}{4} \frac{u^4}{4} - \frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{u^6}{6} - \dots \quad (u^2 < 1.)$$

$$110. \operatorname{csch}^{-1} u = \sinh^{-1} \frac{1}{u} = \frac{1}{u} - \frac{1}{2} \frac{1}{3u^3} + \frac{1}{2} \frac{3}{4} \frac{1}{5u^5} - \frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{1}{7u^7} + \dots \quad (u^2 > 1.)$$

$$= \log \frac{2}{u} + \frac{1}{2} \frac{u^2}{2} - \frac{1}{2} \frac{3}{4} \frac{u^4}{4} + \frac{1}{2} \frac{3}{4} \frac{5}{6} \frac{u^6}{6} - \dots \quad (u^2 < 1.)$$

H.—DERIVATIVES.

$$111. \frac{d e^u}{du} = e^u.$$

$$112. \frac{d \log_e u}{du} = \frac{1}{u}.$$

$$113. \frac{d a^u}{du} = a^u \cdot \frac{dv}{du} \cdot \log_e a.$$

$$114. \frac{d u^a}{du} = u^a (1 + \log_e u).$$

$$115. \frac{d \sinh u}{du} = \cosh u.$$

$$116. \frac{d \cosh u}{du} = \sinh u.$$

$$117. \frac{d \tanh u}{du} = \operatorname{sech}^2 u.$$

$$118. \frac{d \coth u}{du} = -\operatorname{csch}^2 u.$$

$$119. \frac{d \operatorname{sech} u}{du} = -\operatorname{sech} u \cdot \tanh u.$$

$$120. \frac{d \operatorname{csch} u}{du} = -\operatorname{csch} u \cdot \coth u.$$

$$121. \frac{d \sinh^{-1} u}{du} = \frac{1}{\sqrt{u^2 + 1}}$$

$$122. \frac{d \cosh^{-1} u}{du} = \frac{1}{\sqrt{u^2 - 1}}$$

$$123. \frac{d \tanh^{-1} u}{du} = \frac{1}{1 - u^2}$$

$$124. \frac{d \coth^{-1} u}{du} = \frac{1}{1 - u^2}$$

$$125. \frac{d \operatorname{sech}^{-1} u}{du} = \frac{-1}{u \sqrt{1 - u^2}}$$

$$126. \frac{d \operatorname{csch}^{-1} u}{du} = \frac{-1}{u \sqrt{u^2 + 1}}$$

$$127. \frac{d \operatorname{gd} u}{du} = \operatorname{sech} u.$$

$$128. \frac{d \operatorname{gd}^{-1} u}{du} = \operatorname{sech} u.$$

F.—INTEGRALS. (INTEGRATION CONSTANTS ARE OMITTED.)

$$129. \int \sinh u \, du = \cosh u.$$

$$130. \int \cosh u \, du = \sinh u.$$

$$131. \int \tanh u \, du = \log \cosh u.$$

$$132. \int \coth u \, du = \log \sinh u.$$

$$133. \int \operatorname{sech} u \, du = 2 \tan^{-1} e^u = \operatorname{gd} u.$$

$$134. \int \operatorname{csch} u \, du = \log \tanh \frac{u}{2}.$$

$$135. \int \sinh^n u \, du = \frac{1}{n} \sinh^{n-1} u \cosh u - \frac{n-1}{n} \int \sinh^{n-2} u \, du, \\ = \frac{1}{n+1} \sinh^{n+1} u \cosh u - \frac{n+2}{n+1} \int \sinh^{n-1} u \, du.$$

$$136. \int \cosh^n u \, du = \frac{1}{n} \sinh u \cosh^{n-1} u + \frac{n-1}{n} \int \cosh^{n-2} u \, du, \\ = -\frac{1}{n+1} \sinh u \cosh^{n+1} u + \frac{n+2}{n+1} \int \cosh^{n+2} u \, du.$$

$$137. \int u \sinh u \, du = u \cosh u - \sinh u.$$

$$138. \int u \cosh u \, du = u \sinh u - \cosh u.$$

$$139. \int u^2 \sinh u \, du = (u^2 + 2) \cosh u - 2u \sinh u.$$

$$140. \int u^n \sinh u \, du = u^n \cosh u - nu^{n-1} \sinh u \\ + n(n-1) \int u^{n-2} \sinh u \, du.$$

$$141. \int \sinh^2 u \, du = \frac{1}{2} (\sinh u \cosh u - u).$$

$$142. \int \sinh u \cdot \cosh u \, du = \frac{1}{2} \cosh (2u).$$

$$143. \int \cosh^2 u \, du = \frac{1}{2} (\sinh u \cosh u + u).$$

$$144. \int \tanh^2 u \, du = u - \tanh u.$$

$$145. \int \coth^2 u \, du = u - \coth u.$$

$$146. \int \operatorname{sech}^2 u \, du = \tanh u.$$

$$147. \int \operatorname{sech}^3 u \, du = \frac{1}{2} \operatorname{sech} u \tanh u + \frac{1}{2} \operatorname{gd} u.$$

$$148. \int \operatorname{csch}^2 u \, du = -\coth u.$$

$$149. \int \sinh^{-1} u \, du = u \sinh^{-1} u - (1 + u^2)^{1/2}.$$

$$150. \int \cosh^{-1} u \, du = u \cosh^{-1} u - (u^2 - 1)^{1/2}.$$

$$151. \int \tanh^{-1} u \, du = u \tanh^{-1} u + \frac{1}{2} \log (1 - u^2).$$

$$152. \int u \sinh^{-1} u \, du = \frac{1}{2} \left[(2u^2 + 1) \sinh^{-1} u - u (1 + u^2)^{1/2} \right].$$

$$153. \int u \cosh^{-1} u \, du = \frac{1}{2} \left[(2u^2 - 1) \cosh^{-1} u - u (u^2 - 1)^{1/2} \right].$$

$$154. \int (\cosh a + \cosh u)^{-1} du = 2 \operatorname{csch} a \cdot \tanh^{-1} (\tanh \frac{1}{2} u \cdot \tanh \frac{1}{2} a), \\ = \operatorname{csch} a \left[\log \cosh \frac{1}{2} (u + a) - \log \cosh \frac{1}{2} (u - a) \right].$$

$$155. \int (\cos a + \cosh u)^{-1} du = 2 \operatorname{csc} a \cdot \tan^{-1} (\tanh \frac{1}{2} u \cdot \tan \frac{1}{2} a).$$

$$156. \int (1 + \cos a \cdot \cosh u)^{-1} du = 2 \operatorname{csc} a \cdot \tanh^{-1} (\tanh \frac{1}{2} u \cdot \tan \frac{1}{2} a).$$

$$157. \int \sinh u \cos u \, du = \frac{1}{2} (\cosh u \cdot \cos u + \sinh u \cdot \sin u).$$

$$158. \int \cosh u \cdot \cos u \, du = \frac{1}{2} (\sinh u \cdot \cos u + \cosh u \cdot \sin u).$$

$$159. \int \sinh u \cdot \sin u \, du = \frac{1}{2} (\cosh u \cdot \sin u - \sinh u \cdot \cos u).$$

$$160. \int \cosh u \cdot \sin u \, du = \frac{1}{2} (\sinh u \cdot \sin u - \cosh u \cdot \cos u).$$

$$161. \int \sinh (mu) \sinh (nu) \, du \\ = \frac{1}{m^2 - n^2} \left[m \sinh (nu) \cosh (mu) - n \cosh (nu) \sinh (mu) \right].$$

$$\begin{aligned}
 176. \int \frac{du}{(a-u)(u-b)^{3/2}} &= \frac{2}{(a-b)^{3/2}} \tanh^{-1} \sqrt{\frac{u-b}{a-b}}, \\
 &\text{or } \frac{2}{(b-a)^{3/2}} \tanh^{-1} \sqrt{\frac{u-b}{b-a}}, \\
 &\text{or } \frac{2}{(a-b)^{3/2}} \coth^{-1} \sqrt{\frac{u-b}{a-b}}. \quad (\text{The real form is to be taken.})
 \end{aligned}$$

$$\begin{aligned}
 177. \int \frac{du}{(a-u)(b-u)^{3/2}} &= \frac{2}{(b-a)^{3/2}} \tanh^{-1} \sqrt{\frac{b-u}{b-a}}, \\
 &\text{or } \frac{2}{(b-a)^{3/2}} \coth^{-1} \sqrt{\frac{b-u}{b-a}}, \\
 &\text{or } \frac{2}{(a-b)^{3/2}} \tanh^{-1} \sqrt{\frac{b-u}{a-b}}. \quad (\text{The real form is to be taken.})
 \end{aligned}$$

$$178. \int (u^2 - a^2)^{3/2} du = \frac{1}{2} u (u^2 - a^2)^{3/2} - \frac{1}{2} a^2 \cosh^{-1} \frac{u}{a}.$$

$$179. \int (a^2 - u^2)^{3/2} du = \frac{1}{2} u (a^2 - u^2)^{3/2} + \frac{1}{2} a^2 \sinh^{-1} \frac{u}{a}.$$

$$180. \int (u^2 + a^2)^{3/2} du = \frac{1}{2} u (u^2 + a^2)^{3/2} + \frac{1}{2} a^2 \sinh^{-1} \frac{u}{a}.$$

$$181. \int e^{au} du = \frac{e^{au}}{a}.$$

$$182. \int u e^{au} du = \frac{e^{au}}{a^2} (au - 1).$$

$$183. \int u^m e^{au} du = \frac{u^m e^{au}}{a} - \frac{m}{a} \int u^{m-1} e^{au} du.$$

$$184. \int \frac{e^{au}}{u^m} du = \frac{1}{m-1} \left[-\frac{e^{au}}{u^{m-1}} + a \int \frac{e^{au}}{u^{m-1}} du \right].$$

$$185. \int a^{bu} du = \frac{a^{bu}}{b \log a}.$$

$$\begin{aligned}
 186. \int u^n a^u du &= \frac{a^n u^n}{\log a} - \frac{u a^n u^{n-1}}{(\log a)^2} + \frac{u(n-1) a^n u^{n-2}}{(\log a)^2} \dots \\
 &\quad \pm \frac{u(n-1)(n-2) \dots 2.1 a^n}{(\log a)^{n+1}}.
 \end{aligned}$$

$$\begin{aligned}
 187. \int \frac{a^u du}{u^n} &= \frac{a^u}{u^{n-1}} \left[-\frac{1}{u^{n-1}} - \frac{\log a}{(n-2) u^{n-2}} - \frac{(\log a)^2}{(n-2)(n-3) u^{n-3}} \right. \\
 &\quad \left. - \dots + \frac{(\log a)^{n-1}}{(n-2)(n-3) \dots 2.1} \int \frac{a^u du}{u} \right].
 \end{aligned}$$

$$188. \int \frac{a^u du}{u} = \log u + u \log a + \frac{(u \log a)^2}{2 \cdot 2!} + \frac{(u \log a)^3}{3 \cdot 3!} + \dots$$

$$189. \int \frac{du}{1+e^u} = \log \frac{e^u}{1+e^u}$$

$$190. \int \frac{du}{a+be^{mu}} = \frac{1}{am} \left[mu - \log(a+be^{mu}) \right].$$

$$191. \int \frac{du}{ae^{mu}+be^{-mu}} = \frac{1}{m(ab)^{1/2}} \tan^{-1} \left(e^{mu} \sqrt{\frac{a}{b}} \right).$$

$$192. \int \frac{du}{(a+be^{mu})^2} = \frac{1}{m \sqrt{a}} \left[\log(\sqrt{a+be^{mu}} - \sqrt{a}) \right. \\ \left. - \log(\sqrt{a+be^{mu}} + \sqrt{a}) \right].$$

$$193. \int \frac{ue^u du}{(1+u)^2} = \frac{e^u}{1+u}.$$

$$194. \int e^{au} \log u \, du = \frac{e^{au} \log u}{a} - \frac{1}{a} \int \frac{e^{au}}{u} du.$$

$$195. \int \log u \, du = u \log u - u.$$

$$196. \int u^m \log u \, du = \frac{u^{m+1}}{m+1} \left[\frac{\log u}{m+1} - \frac{1}{(m+1)^2} \right].$$

$$197. \int (\log u)^n \, du = u (\log u)^n - n \int (\log u)^{n-1} \, du.$$

$$198. \int u^m (\log u)^n \, du = \frac{u^{m+1} (\log u)^n}{m+1} - \frac{n}{m+1} \int u^m (\log u)^{n-1} \, du.$$

$$199. \int \frac{(\log u)^n \, du}{u} = \frac{(\log u)^{n+1}}{n+1}.$$

$$200. \int \frac{du}{\log u} = \log(\log u) + \log u + \frac{(\log u)^2}{2.2!} + \frac{(\log u)^3}{3.3!} + \dots$$

$$201. \int \frac{du}{(\log u)^n} = -\frac{u}{(n-1)(\log u)^{n-1}} + \frac{1}{n-1} \int \frac{du}{(\log u)^{n-2}}.$$

$$202. \int \frac{u^n \, du}{(\log u)^n} = -\frac{u^{n+1}}{(n-1)(\log u)^{n-1}} + \frac{n+1}{n-1} \int \frac{u^n \, du}{(\log u)^{n-2}}.$$

$$203. \int \frac{u^n \, du}{\log u} = \int \frac{e^{-y}}{y} dy, \text{ where } y = (n+1) \log u.$$

$$204. \int \frac{du}{u \log u} = \log(\log u).$$

$$205. \int \frac{du}{u (\log u)^n} = -\frac{1}{(n-1)(\log u)^{n-1}}.$$

$$206. \int (a+bu)^m \log u \, du = \\ \frac{1}{b(m+1)} \left[(a+bu)^{m+1} \log u - \int \frac{(a+bu)^{m+1} \, du}{u} \right].$$

207. $\int_0^a u^n \log (a + bu) du = \frac{1}{n+1} \left[a^{n+1} \log (a + bu) - b \int \frac{a^{n+1} du}{a + bu} \right],$
208. $\int_0^a \log \frac{(a + bu)^n}{u} du = \log a + \log u + \frac{bu}{a} + \frac{1}{2} \left(\frac{bu}{a} \right)^2 + \frac{1}{3} \left(\frac{bu}{a} \right)^3 + \dots + \frac{1}{2} (\log bu)^2 + \dots + \frac{a}{bu} + \frac{1}{2} \left(\frac{a}{bu} \right)^2 + \frac{1}{3} \left(\frac{a}{bu} \right)^3 + \dots +$
209. $\int_0^a \frac{\log u du}{(a + bu)^n} = \frac{1}{b(n-1)} \left[\frac{\log u}{(a + bu)^{n-1}} + \int \frac{du}{u(a + bu)^{n-1}} \right],$
210. $\int_0^a \frac{\log u du}{a + bu} = \frac{1}{b} \log u + \log (a + bu) - \frac{1}{b} \int \frac{\log (a + bu)}{u} du,$
211. $\int_0^a (a + bu) \log u du = \frac{(a + bu)^2}{2b} \log u - \frac{u^2 \log u}{2b} + au - \frac{1}{2} bu^2,$
212. $\int_0^a \frac{\log u du}{(a + bu)^{3/2}} = \frac{2}{b} \left[(\log u - 2) \sqrt{a + bu} + \sqrt{a} \log (\sqrt{a + bu} + \sqrt{a}) - \sqrt{a} \log (\sqrt{a + bu} - \sqrt{a}) \right], \text{ if } a > 0,$
 $= \frac{2}{b} \left[(\log u - 2) \sqrt{a + bu} + 2 \sqrt{a} \tan^{-1} \sqrt{\frac{a + bu}{-a}} \right], \text{ if } a < 0,$
213. $\int_0^a e^{-au^2} du = \frac{1}{2a} \sqrt{\frac{\pi}{a}} = \frac{1}{2a} \Gamma\left(\frac{1}{2}\right),$
214. $\int_0^a u^n e^{-au^2} du = \frac{1}{2} \frac{\Gamma\left(\frac{n+1}{2}\right)}{a^{\frac{n+1}{2}}},$
215. $\int_0^a u^{2n} e^{-au^2} du = \frac{1 \cdot 3 \cdot 5 \dots (2n-1)}{2^{n+1} a^n} \sqrt{\frac{\pi}{a}},$
216. $\int_0^a e^{-u^2} du = \frac{e^{-u^2}}{-2} \sqrt{\frac{\pi}{a}}, \quad a > 0,$
217. $\int_0^a e^{-au^2} \sqrt{u} du = \frac{1}{2a} \sqrt{\frac{\pi}{a}},$
218. $\int_0^a \frac{e^{-au^2}}{\sqrt{u}} du = \sqrt{\frac{\pi}{a}}, \quad a > 0,$
219. $\int_0^a \frac{du}{\sinh (nu)} = \frac{\pi}{2n},$
220. $\int_0^a \frac{u du}{\sinh (nu)} = \frac{\pi^2}{4n^2},$

$$221. \int_0^{\pi} \sinh (mw) \cdot \sinh (nu) \, du =: \int_0^{\pi} \cosh (mw) \cdot \cosh (nu) \, du \\ = 0, \text{ if } m \text{ is different from } n.$$

$$222. \int_0^{\pi} \cosh^2 (mw) \, du =: \int_0^{\pi} \sinh^2 (mw) \, du =: \frac{i\pi}{2}.$$

$$223. \int_{-i\pi}^{+i\pi} \sinh (nu) \, du = 0.$$

$$224. \int_0^{\pi} \cosh (mw) \, du = 0.$$

$$225. \int_{-i\pi}^{+i\pi} \sinh (mw) \cosh (nu) \, du = 0.$$

$$226. \int_0^{\pi} \sinh (mw) \cosh (nu) \, du = 0.$$

$$227. \int_0^1 \frac{\log u}{1-u} \, du = -\frac{\pi^2}{6}.$$

$$228. \int_0^1 \frac{\log u}{1+u} \, du = -\frac{\pi^2}{12}.$$

$$229. \int_0^1 \frac{\log u}{1-u^2} \, du = -\frac{\pi^2}{8}.$$

$$230. \int_0^1 \log \left(\frac{1+u}{1-u} \right) \cdot \frac{du}{u} = \frac{\pi^2}{4}.$$

$$231. \int_0^1 \frac{\log u \, du}{(1-u^2)^{1/2}} = -\frac{\pi}{2} \log 2.$$

$$232. \int_0^1 \frac{(u^p - u^q) \, du}{\log u} =: \log \frac{p+1}{q+1}, \text{ if } p+1 > 0, q+1 > 0.$$

$$233. \int_0^{\infty} (\log u)^n \, du = (-1)^n \cdot n!.$$

$$234. \int_0^1 \left(\log \frac{1}{u} \right)^{\frac{1}{2}} \, du =: \sqrt{\frac{\pi}{2}}.$$

$$235. \int_0^1 \left(\log \frac{1}{u} \right)^n \, du = n!.$$

$$236. \int_0^1 \frac{du}{\left(\log \frac{1}{u} \right)^{\frac{1}{2}}} = \sqrt{\pi}.$$

$$237. \int_0^1 u^m \log \left(\frac{1}{u} \right)^n \, du =: \frac{\Gamma(n+1)}{(m+1)^{n+1}}, \text{ if } m+1 > 0, n+1 > 0.$$

$$238. \int_0^{\infty} \log \left(\frac{e^x + 1}{e^x - 1} \right) \, dx = \frac{\pi^2}{4}.$$

C.—FORMULAS FOR THE SOLUTION OF PSEUDO-SPHERICAL TRIANGLES.

a.—*Right Triangles.*

$$\sin A : : \frac{\cot H(a)}{\cot H(c)} : : \frac{\sinh a}{\sinh c},$$

$$\cos A : : \frac{\cos H(b)}{\cos H(c)} : : \frac{\tanh b}{\tanh c},$$

$$\cos A : : \frac{\sin H}{\sin H(a)} : : \sin B \cosh a,$$

$$\cot A : : \frac{\cot H(b)}{\cos H(a)} : : \frac{\sinh b}{\tanh a},$$

$$\cos H : : \frac{\cos H(a)}{\cos H(c)} : : \frac{\tanh a}{\tanh c},$$

$$\cos H : : \frac{\sin A}{\sin H(b)} : : \sin A \cosh b,$$

$$\sin H : : \frac{\cot H(b)}{\cot H(c)} : : \frac{\sinh b}{\sinh c},$$

$$\cot H : : \frac{\cot H(a)}{\cos H(b)} : : \frac{\sinh a}{\tanh b},$$

$$\tan A \tan B : : \sin H(c) : : \sin H(a) \sin H(b),$$

$$: : \operatorname{sech} c : : \operatorname{sech} a \operatorname{sech} b,$$

b.—*Oblique Triangles.*

The general relations are:

$$\cosh a : : \cosh b \cosh c : : \sinh b \sinh c \cos A,$$

$$\sin A \sinh b : : \sin B \sinh a,$$

$$\coth a \sinh b : : \cosh b \cos C + \sin C \cot A,$$

$$\cos A : : \cos B \cos C + \sin B \sin C \cosh a,$$

Portl solves the six typical cases in the following manner:

CASE 1.—Given a, b, c . Put $2p = a + b + c$. Then,

$$\tan \frac{1}{2} A : : \sqrt{\frac{\sinh(p-b) \cdot \sinh(p-c)}{\sinh p \sinh(p-a)}},$$

The conditions are $a < b + c$; $b < a + c$; and $c < a + b$.CASE 2.—Given a, b, A . Draw the geodetic line CD perpendicular to AB .Then $a > CD$; $\frac{\sinh b \sin A}{\sinh a} < 1$; $\cot \frac{1}{2} C > 0$; and $\tanh \frac{1}{2} c > 0$.

$$\sin B = \frac{\sinh b \sin A}{\sinh a},$$

$$\cos \frac{1}{2} C = \frac{\tan \frac{1}{2} (A+B) \sinh \frac{1}{2} (a+b)}{\sinh \frac{1}{2} (a+b)},$$

$$\tanh \frac{1}{2} c = \frac{\tanh \frac{1}{2} (a+b) \sin \frac{1}{2} (A+B)}{\sin \frac{1}{2} (A+B)}.$$

CASE 3.—Given a, b, C . $2\Delta = \pi - (A+B+C)$.

$$\tan \frac{1}{2} (A+B) = \cot \frac{1}{2} C \frac{\cosh \frac{1}{2} (a-b)}{\cosh \frac{1}{2} (a+b)},$$

$$\tan \frac{1}{2} (A-B) = \cot \frac{1}{2} C \frac{\sinh \frac{1}{2} (a-b)}{\sinh \frac{1}{2} (a+b)},$$

$$\tanh \frac{1}{2} c = \sqrt{\frac{\sin \Delta \sin (\Delta+B+C)}{\sin (\Delta+B) \sin (\Delta+C)}}.$$

CASE 4.—Given A, B, c . $A+B < \pi$ and $DRC = DRG$. The angle DRC is the angle between the geodetic DB drawn perpendicular to AC and the geodetic BC drawn parallel to AC .

$$\tanh \frac{1}{2} (a+b) = \tanh \frac{1}{2} c \frac{\cos \frac{1}{2} (A-B)}{\cos \frac{1}{2} (A+B)},$$

$$\tanh \frac{1}{2} (a-b) = \tanh \frac{1}{2} c \frac{\sin \frac{1}{2} (A-B)}{\sin \frac{1}{2} (A+B)},$$

$$\tan \frac{1}{2} C = \sqrt{\frac{\sinh (\beta-a) \sinh (\beta+b)}{\sinh \beta \sinh (\beta-c)}}.$$

CASE 5.—Given A, B, a . $a > CD$ and $A+B < \pi$.

Solve the two right triangles formed by the geodetic line CD drawn perpendicular to AB .

CASE 6.—Given A, B, C . $A+B+C < \pi$.

$$\tanh \frac{1}{2} a = \sqrt{\frac{\sin \Delta \sin (\Delta+B)}{\sin (\Delta+B) \sin (\Delta+C)}}.$$

H.—FORMULÆ FOR THE SOLUTION OF THE CUBIC¹.

If a cubic equation is given in the form

$$x^3 + ax^2 + bx + c = 0,$$

it can be reduced by the substitution $x = x' - \frac{a}{3}$ to the simpler form

$$x'^3 + px' + q = 0,$$

¹ Taken from Des Ingenieurs Taschenbuch der Hütte, Berlin, 18th edition.

CASE 1.—When $x^3 + px \pm q = 0$; p and q positive. Compute the auxiliary variable n from $\sinh n = \frac{\frac{1}{2}q}{\frac{1}{2}p(\frac{1}{2}p)^{\frac{1}{2}}}$; then the roots are

$$x_1 = \mp 2 \sqrt{\frac{1}{2}p} \sinh \frac{1}{2} n,$$

$$x_2 = \pm \sqrt{\frac{1}{2}p} \sinh \frac{1}{2} n + i \sqrt{p} \cosh \frac{1}{2} n,$$

$$x_3 = \pm \sqrt{\frac{1}{2}p} \sinh \frac{1}{2} n - i \sqrt{p} \cosh \frac{1}{2} n.$$

CASE 2.—When $x^3 - px \pm q = 0$; p and q positive. $(\frac{1}{2}p)^3 < (\frac{1}{2}q)^2$. Compute n from $\cosh n = \frac{\frac{1}{2}q}{\frac{1}{2}p(\frac{1}{2}p)^{\frac{1}{2}}}$; then the roots are

$$x_1 = \mp 2 \sqrt{\frac{1}{2}p} \cosh \frac{1}{2} n,$$

$$x_2 = \pm \sqrt{\frac{1}{2}p} \cosh \frac{1}{2} n + i \sqrt{p} \sinh \frac{1}{2} n,$$

$$x_3 = \pm \sqrt{\frac{1}{2}p} \cosh \frac{1}{2} n - i \sqrt{p} \sinh \frac{1}{2} n.$$

CASE 3.—When $x^3 - px \pm q = 0$; p and q positive. $(\frac{1}{2}p)^3 > (\frac{1}{2}q)^2$. Compute the angle n from $\cos n = \frac{\frac{1}{2}q}{\frac{1}{2}p(\frac{1}{2}p)^{\frac{1}{2}}}$; then the roots are

$$x_1 = \mp 2 \sqrt{\frac{1}{2}p} \cos \frac{1}{2} n,$$

$$x_2 = \mp 2 \sqrt{\frac{1}{2}p} \cos (\frac{1}{2} n + 120^\circ),$$

$$x_3 = \mp 2 \sqrt{\frac{1}{2}p} \cos (\frac{1}{2} n + 240^\circ).$$

CASE 4.—When $x^3 - px \pm q = 0$; p and q positive. $(\frac{1}{2}p)^3 = (\frac{1}{2}q)^2$.

$$x_1 = \mp 2 \sqrt{\frac{1}{2}p},$$

$$x_2 = x_3 = \pm \sqrt{\frac{1}{2}p}.$$

For applications of hyperbolic and circular functions to the solution of the cubic whose coefficients are general (*i. e.*, real or complex), see a brief paper by Mr. W. D. Lambert in *American Mathematical Monthly* for April, 1906.

GEOMETRICAL ILLUSTRATIONS OF HYPERBOLIC FUNCTIONS.

The algebraic relationship of the hyperbolic functions to the circular functions has been discussed in the section on definitions and formulas. A close relationship also exists between the elliptic functions and the hyperbolic functions. Thus it may be shown that the elliptic integral of the first kind,

$$u = \int \frac{d\phi}{\sqrt{1 - k^2 \sin^2 \phi}},$$

in which k is the modulus and ϕ the amplitude, reduces to $u = gd^{-1} \phi$ when $k = 1$. The elliptic functions thus degenerate into the hyperbolic functions when the modulus is equal to unity. A case in point is the elastica, the equation of which takes the form of an elliptic integral, excepting when the modulus is unity. It then reduces to the two equations

$$\frac{x}{a} = u - 2 \tanh u, \quad \frac{y}{a} = \frac{2}{\cosh u},$$

which is a syntractrix described by the free end of a rod whose middle point traces out the tractory.¹

Ligowski gives the following easy geometrical method of demonstrating the relations between the hyperbolic and circular functions. Let the equation of the circle of unit radius be

$$x^2 + y^2 = 1,$$

and call u_c the arc of this circle from the positive x axis to the point x_c, y_c .

Then, of course, the circle may be represented by the two equations

$$x_c = \cos u_c; \quad y_c = \sin u_c.$$

Now, the area of the circular sector, whose

chord is $2y_c$, is $\frac{2 \cdot u_c \cdot 1}{2} = u_c$, so that x_c and

y_c may be regarded as the cosine and sine of a sector u_c . The ellipse may be derived from the unit circle by multiplying the ordinates y_c by δ . Hence, in the ellipse, the area of the sector subtended by the chord $2y_c$ is, say, u_s and $u_s = \delta u_c$.

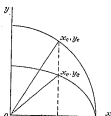


FIG. 4.

¹If in these equations u is substituted for z they represent any syntractrix. The two equations, with this substitution, can be combined to the following:

$$\frac{(am - x)^2}{a^2 m^2} + \frac{y^2}{a^2 m^2} = 1,$$

showing that the curve is traced by a point on a circle of radius am whose center is in motion. It is noteworthy that if in this equation the hyperbolic sector u is replaced by a circular sector ϕ , the new equation represents a prolate or a curtate cycloid, or better the synchycloid. Thus the syntractrix may be considered as a synchycloid with an infinite period.

Thus

$$x_e = \cos u_e = \cos \frac{u_e}{\delta}$$

$$y_e = \sin u_e = \frac{y_e}{\delta} = \sin \frac{u_e}{\delta}$$

so that for the ellipse,

$$x_e^2 + \frac{y_e^2}{\delta^2} = 1,$$

$$x_e = \cos u_e = \cos \frac{u_e}{\delta}; \quad y_e = \delta \sin \frac{u_e}{\delta}.$$

The equation

$$x^2 - y^2 = 1$$

represents an equilateral hyperbola, and if u is the area of the hyperbolic sector whose chord is $2y$, then there can be no objection to writing

$$x = \cosh u; \quad y = \sinh u,$$

where \cosh and \sinh are functions whose nature is still to be determined. The most evident relation is

$$\cosh^2 u - \sinh^2 u = 1.$$

Now if $i = \sqrt{-1}$, the hyperbola may be written

$$x^2 + \frac{y^2}{i^2} = 1,$$

which is an ellipse whose major axis is unity and whose minor axis is i . Comparing this with the ellipse discussed above, it appears at once that

$$x = \cosh u = \cos \frac{u}{i}$$

$$y = \sinh u = i \sin \frac{u}{i}$$

or, in an equivalent form,

$$\cosh u = \cos iu; \quad \sinh u = -i \sin iu,$$

$$\cosh iu = \cos u; \quad \sinh iu = i \sin u.$$

The investigation of $\cosh u$ and $\sinh u$ can be completed in various ways; for example, by writing out the series for $\cos iu$ and $-i \sin iu$ and showing that their sum or difference is $e^{\pm u}$.

The geometrical properties of the hyperbolic functions themselves are commonly discussed in reference to the equilateral hyperbola. They could also be derived from the geometry of the ellipse without reference to the hyperbola; but a more perspicuous method seems to be to study the relations of these functions to both curves at the same time.¹

In any ellipse,

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1,$$

¹ See Bull. Geol. Soc. Am., vol. 2, 1891, p. 49, and Am. Jour. Sci., vol. 46, 1893, p. 337.

the area $\alpha\beta$ may be chosen as the unit area, so that the equation of the curve becomes

$$a^2 x^2 + \frac{y^2}{a^2} = 1.$$

By varying the value of a in this equation a family of ellipses is obtained each of area π , all with the same center and all with axes lying in the axes of coördinates. The envelope of this system of curves is the hyperbola $xy = \frac{1}{2}$, and this may be conceived as generated by the motion of a single point. The coördinates of the point P_1 , at which the hyperbola is tangent to the ellipse, are

$$x_1 = \frac{1}{\sqrt{2a}}, \quad y_1 = \frac{a}{\sqrt{2}}.$$

and the coördinates of the point ϵ at which the hyperbola is tangent to the unit circle, are

$$x = y = \frac{1}{\sqrt{2}}.$$

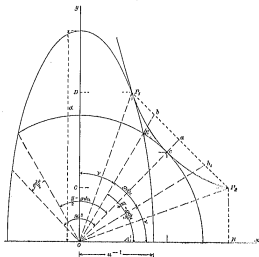


FIG. 5.

If the hyperbola is conceived as generated by the point ϵ in moving from its original position to P_1 (or as a "line of flow"), its radius vector sweeps over an hyperbolic sector αP_1 . If this area is called $\frac{\pi}{2}$, then by a well-known formula,

$$d\alpha = x dy - y dx,$$

and because $xy = \frac{1}{2}$,

$$du = \frac{1}{2} \left(\frac{dy}{y} - \frac{dx}{x} \right).$$

Since no integration constant is required,

$$u = \frac{1}{2} \log \frac{y_1}{x_1} = \frac{1}{2} \log a^2 \text{ or } a = e^u.$$

The area w is the sector OP_1CP_2 , where the coördinates of P_2 are $x_2 = y_1$ and $y_2 = x_1$. It is noteworthy that two other areas, AP_1CP_2B and CDP_1CP_2 , have this same value, for evidently

$$\int_{x_1}^{x_2} y \, dx = \int_{y_2}^{y_1} x \, dy = \log a = u.$$

The length of the chord P_1P_2 is

$$\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} = a - a^{-1},$$

and half of this, or P_1a , is the hyperbolic sine which may evidently be put in the form

$$\sinh u = \frac{e^u - e^{-u}}{2}.$$

Since the curve P_1CP_2 is an hyperbola,

$$ax^2 - ay_1^2 = 1,$$

and therefore

$$au = \sqrt{1 - \sinh^2 u} = \frac{e^u + e^{-u}}{2} = \cosh u.$$

The diameters connecting the points of intersection of the unit circle and the ellipse whose axes are a and a^{-1} , may be called the isocyclic diameters of the ellipse, because the circle and the ellipse have the same area. These diameters are not conjugate. If the ellipse is conceived as the section on the greatest and least axes of an ellipsoid of unit volume, the isocyclic diameters are the traces of the circular sections of the ellipsoid. The coördinates of one of the points of intersection, say K , are

$$x = \frac{1}{\sqrt{a^2 + 1}}, \quad y = \frac{a}{\sqrt{a^2 + 1}},$$

and therefore the angle ν , which the vector OK makes with the major axis of the ellipse, is given by the relation

$$\tan \nu = a^{-1} = e^{-u},$$

and it follows that

$$\tan \left(\frac{\pi}{2} - 2\nu \right) = \frac{1}{2} (\cot \nu - \tan \nu) = \sinh u.$$

This angle $\left(\frac{\pi}{2} - 2\nu \right)$ is $gd \, u$, or the gudermannian of u , so that in any

ellipse whatever the angle made by any line parallel to one isocyclic diameter with a perpendicular on the other isocyclic diameter is the gudermannian of the natural logarithm of the semi-major axis, this being expressed in terms of the isocyclic radius, which in the general case is the square root of the product of the semiaxes.¹ In the diagram the gudermannian $gd\delta$ is shown as bisected by the axis of the hyperbola, and it is worth remarking that if the ellipse were to be distorted into a circle by compressing the major axis and elongating the minor axis, the line od would be brought into coincidence with od_1 , so that $gd\pi$ can be defined as the angle through which an isocyclic diameter has swept when the ellipse has been derived from a circle by rotational plane strain.

The angle $45^\circ + \frac{gd\pi}{2}$ which occurs in the formula for meridional parts is the angle made by either isocyclic diameter of the ellipse with the minor axis, and the tangent of this angle is the semi-major axis a .

The twofold relations of the hyperbolic functions to the hyperbola and the ellipse are illustrated in a somewhat different manner in figure 6.

Here the curve $p_1c p_2$ is an arc of an hyperbola $y^2 - x^2 = 1$. If the area of the sector op_1cp_2 is called u , $a p_1 = \sinh u$ and $op_2 = \cosh u$. Make $bc = p_1a$ and draw the associated ellipse shown in the diagram. Then the angle $boc = gd u$, $bo = \cosh u$ and

$$\begin{aligned}\tan gd u &= \sinh u \\ \sec gd u &= \cosh u \\ \sin gd u &= \tanh u.\end{aligned}$$

The ellipse has corresponding properties. Since the gudermannian is the angle between either isocyclic diameter and a line perpendicular to the other, the line od may be regarded as coinciding with one isocyclic diameter and the axis of abscissas with the other. The major axis of the ellipse then bisects

¹ The isocyclic diameter used in this illustration of hyperbolic functions lies in the circular section of a shear ellipsoid, or an ellipsoid in which the mean axis is a mean proportional between the greatest and least axes. The position of the circular section of the general ellipsoid is also readily expressed in terms of hyperbolic functions. Let the equation of the ellipsoid be

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1; \quad a > b > c.$$

If $\frac{b}{c} = \cosh u_1$ and $\frac{a}{b} = \cosh u_2$,

the angle ν which the circular section makes with the greatest axis is given by

$$\tan \nu = \frac{1}{b} \tanh \nu = \frac{\frac{b}{c} - \frac{a}{c}}{1 - \frac{a}{b}} = \frac{\tanh u_1}{\sinh u_2}.$$

If $u_1 = u_2$ and $\frac{a}{b} = e$ this expression reduces to $\tan \nu = e^{-1}$, or to the case of the shear ellipsoid.

the angle $go'' = g'd\pi$, its magnitude is $2\epsilon'$, and the equation of the ellipse is

$$x^2 + 4xy \tan g'd\pi + y^2 (4 \tan^2 g'd\pi + 1) = 1.$$

By varying the value of $\tan g'd\pi$ (or $\sinh \pi$) a system of ellipses is obtained whose envelopes are $y = \pm 1$, so that if any one of the ellipses is supposed to be derived from the circle by distortion, the process is that generally known as "shearing motion or scission."

If the points in the circle are sought which correspond to the points on the

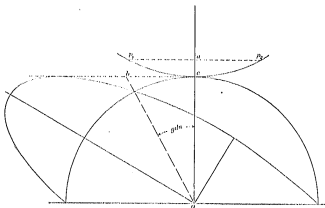


FIG. 6.

major axis of the ellipsoid, it will be found that the angle between the two positions (the angle of rotation) is equal to the *gerdmannian*.¹

If instead of the horizontal, the vertical line in figure 6 had been taken as coinciding with the isocyclic diameter of the ellipse, the result would have been the discovery of a system of ellipses whose envelopes are $x = \pm 1$, similar in all respects excepting orientation to that discussed.

¹ Love's *Treatise on the Theory of Elasticity*, vol. 1, p. 43.

METHODS OF INTERPOLATION.

It is not easy to describe the use of the tables which follow without some notes on the methods of interpolation with reference to which they are arranged. In all of them the argument advances by equal increments, each equal, say, to α . It is required to find a value of the function F intermediate between two tabulated values, F_0 and F_1 , corresponding to a fractional value of the argument or to $n\alpha$, where n is always less than unity, and preferably less than one-half.

Let F_n be the value of the function to be determined; let F_{-1} and F_{-2} be tabulated values of F immediately preceding F_0 , and let F_0 , F_1 be values immediately following F_0 . Denote $F_1 - F_0$ by a_0 , other first differences (Δ') being similarly represented. If also $a_2 = a_1 - a_0$, $b_1 = b_0 - a_1$, etc., the whole system of functions and differences is shown in the following schedule:¹

F	Δ'	Δ''	Δ'''	Δ^{iv}	Δ^v	Δ^6
F_{-2}		b''		d''		f''
	a''		e''		e''	
F_{-1}		b'		d'		f'
	a'		e'		e'	
F_0		b_0		d_0		f_0
	a_1		e_1		e_1	
F_1		b_1		d_1		f_1
	a_2		e_2		e_2	
F_2		b_2		d_2		f_2

The most familiar formula of interpolation is due to Newton, and in the above notation it may be written thus:

$$F_n - F_0 = na_0 + \frac{n(n-1)}{2!} b_1 + \frac{n(n-1)(n-2)}{3!} c_1 \\ + \frac{n(n-1)(n-2)(n-3)}{4!} d_1 + \dots$$

¹The notation and general outline of treatment here presented closely follow Mr. Herbert L. Rice's treatise, *Theory and Practice of Interpolation*, 1899. The Nichols Press, Lynn, Massachusetts.

The coefficients are those of the binomial theorem. This formula is applicable to the first intervals of a series, which is not the case with any other mode of interpolation. It may also be adapted to the last intervals by substituting $-n$ for n and a', b', c', d', \dots for a, b, c, d, \dots . In systematic interpolation, such as is involved in the construction of tables, it is usual to employ the more rapidly converging formulas of Stirling or Bessel; but when a computing machine and a table of products are available it is sometimes less laborious to compute an extra term of Newton's formula than to calculate and apply the mean differences called for by the other methods. Both Stirling's and Bessel's formulas can be derived from Newton's by known relations between the several differences.

In Stirling's formula the mean of the first differences next preceding and following F_0 is made use of instead of only the latter, as in Newton's formula. The third differences are similarly treated, so that a_0, c_0 , etc., being new quantities, are defined by

$$\frac{a' + a_1}{2} = a_0; \quad \frac{c' + c_1}{2} = c_0, \text{ etc.}$$

These mean values are used in conjunction with the even differences on the same horizontal line with F_0 in the schedule, and Stirling's formula is

$$F_n - F_0 = na_0 + \frac{n^2}{2!} b_0 + \frac{n(n^2-1)}{3!} c_0 + \frac{n^2(n^2-1)}{4!} d_0 \\ + \frac{n(n^2-1)(n^2-4)}{5!} e_0 + \dots$$

To interpolate backward it is only needful to substitute $-n$ for n .

In Bessel's formula use is made of mean differences of the even orders, and if b, d , etc., are these means they are defined in terms of the scheduled differences, thus:

$$\frac{b_0 + b_1}{2} = b; \quad \frac{d_0 + d_1}{2} = d, \text{ etc.}$$

They are used in conjunction with the simple odd differences a, c , etc., and the formula is

$$F_n - F_0 = na_0 + \frac{n(n-1)}{2!} b + \frac{n(n-1)(n-1)}{3!} c_1 + \frac{(n+1)n(n-1)(n-2)}{4!} d \\ + \frac{(n+1)n(n-1)(n-2)(n-1)}{5!} e_1 + \dots$$

When $n = \frac{1}{2}$, or for interpolation to the middle of an interval, the coefficient of c_1 vanishes and $F_n - F_0$ is independent of third differences, which is clearly a great advantage. In general this method is very advantageous when n approaches one-half, while Stirling's formula is preferred for small values of n .

When Bessel's formula is used for backward interpolation, it may be written

$$F_s - F_0 = -\omega s' + \frac{\omega(n-1)}{2!} \left(\frac{b_s - b'}{2} \right) - \frac{\omega(n-1)(n-1\frac{1}{2})}{3!} s' + \dots,$$

ω being taken as positive.

A distinct method of interpolation is founded directly upon Taylor's theorem. If $F_s', F_s'',$ etc., are the successive derivatives of F_s , and ω is the constant increment of the argument, this fundamental theorem may be written

$$F_s - F_0 = \omega F_s' + \frac{\omega^2}{2!} F_s'' + \frac{\omega^3}{3!} F_s''' + \frac{\omega^4}{4!} F_s^{(4)} + \dots \dots \dots (\sigma),$$

and this becomes an interpolation formula when the derivatives are expressed in terms of the differences. This is readily accomplished to any degree of exactness whenever the differences become rigorously or sensibly constant at some particular order and the tabular interval is small relatively to the period of the function. To find the numerical values of the derivatives it is not necessary that the analytical expression of the function should be known; for, rearranging the terms of the formula of Bessel and Stirling according to ascending powers of ω and comparing coefficients,

(Bessel.)

(Stirling.)

$$F_s' = \frac{1}{\omega} (a_s - \frac{1}{2} b + \frac{1}{12} c_1 + \frac{1}{12} d - \frac{1}{12} d' c_1 - \dots) = \frac{1}{\omega} (a_s - \frac{1}{2} c_0 + \frac{1}{12} c_0 - \dots)$$

$$F_s'' = \frac{1}{\omega^2} (b - \frac{1}{2} c_1 - \frac{1}{12} d + \frac{1}{12} c_1 + \dots) = \frac{1}{\omega^2} (b_s - \frac{1}{12} d_0 + \dots)$$

$$F_s''' = \frac{1}{\omega^3} (c_1 - \frac{1}{2} d + 0 \dots) = \frac{1}{\omega^3} (c_0 - \frac{1}{4} c_0 + \dots)$$

$$F_s^{(4)} = \frac{1}{\omega^4} (d - \frac{1}{2} c_1 - \dots) = \frac{1}{\omega^4} (d_0 - \dots)$$

$$F_s^{(5)} = \frac{1}{\omega^5} (c_1 - \dots) = \frac{1}{\omega^5} (c_0 - \dots).$$

Hence, to compute the first derivative, say from Stirling's formula, when the 6th differences and $\frac{1}{2}\delta$ of the mean of the corresponding third differences are negligible, it is only needful to take the mean of the first differences preceding and following the tabular value of the function, subtract from it one-sixth ($\frac{1}{6}$) of the mean of the corresponding third differences, and divide the result by ω .

Newton's formula gives for arguments near the beginning of the series of tabular values:

$$F_s' = \frac{1}{\omega} (a_s - \frac{1}{2} b_1 + \frac{1}{4} c_1 - \frac{1}{4} d_1 + \frac{1}{8} c_2 - \dots)$$

$$F_s'' = \frac{1}{\omega^2} (b_1 - c_1 + \frac{1}{2} d_2 - \frac{3}{2} c_3 + \dots)$$

$$F_s''' = \frac{1}{\omega^3} (c_1 - \frac{3}{2} d_1 + \frac{1}{2} c_2 - \dots)$$

In the tables which follow, the first derivatives multiplied by ω are tabulated in units of the last decimal place of the tabulated function (except Table VII), and the remaining quantities required in the computation can be found by mere inspection. The higher order of differences will be needed only for a very few arguments at the beginning or end of those tabular values whose numerical magnitudes approach 0 or ∞ . For the remaining arguments it will be found that the $\frac{1}{4}\omega$ part of the second difference of $\omega F'_\omega$ is not great enough to influence the result, and it is therefore sufficient to use

$$\left. \begin{aligned} F_n &= F_s + n \omega \left(F'_s + \frac{n}{2} \alpha_s \right) \\ F_{-n} &= F_s - n \omega \left(F'_s - \frac{n}{2} \alpha_s \right) \end{aligned} \right\} \dots \dots \dots (\delta),$$

$\omega \alpha_s$ being the mean first difference of $\omega F'$ corresponding to F_s . This formula is rigorous when third differences are zero. In most cases $\frac{n \omega \alpha_s}{2}$ can be found

mentally, and since $\omega \left(F'_s + \frac{n}{2} \alpha_s \right)$ is here to be regarded as an interpolated value of $\omega F'_s$, no confusion can arise as to the sign of the correction. It thus becomes almost as easy to include $\omega \alpha_s$ in the computation as to omit it. A convenient rule is: Find by linear interpolation the value $\omega F'$ for one-half the interval $\left(\frac{n}{2} \right)$; multiply this interpolated value by the entire interval (n) and apply the product to the tabular value of the function, either positively or negatively, according as the function is increasing or decreasing. To illustrate the application of this rule, find $\log_{10} \sinh 0.00304$. In this case $n = 0.4$ and the table gives

$$F_s = 7.47712; \quad \omega F'_s = 1447.7; \quad \omega \alpha_s = -48.3,$$

the last two quantities being expressed in units of the fifth decimal place. Interpolating $\omega F'$ linearly for one-half the interval,

$$\omega F'_{\frac{n}{2}} = \omega \left(F'_s + \frac{n}{2} \alpha_s \right) = 1447.7 - 0.2 \times 48.3 = 1438.0;$$

multiplying this value by n and adding the result to the tabular value of the function, there results

$$F_n = 1438.0 \times 0.4 + 7.47712 = 7.48287.$$

The corresponding difference formula (Bessel's) is

$$F_n = F_s + n \left[a_1 - \frac{(1-n)}{2} \delta \right].$$

The derivative formula (δ) with two terms has the advantage of being much more convenient than the difference formula, while the accuracy of the two is the same (five-eighths of a unit) when the derivatives are tabulated to the

same order of decimal as the function. In the case of linear interpolation, however, it is in general more accurate to use the differences, the maximum error of the difference formula being one-half of a unit and that of the derivative formula three-fourths of a unit in the next succeeding decimal place. The accuracy of the two formulas is the same when the next succeeding decimal of the derivative is tabulated. The error of the derivative formula is then simply the error of the tabular value, while the error of the difference formula may be $=$, $>$ or $<$ than that of the tabular value, but is never greater than one-half of a unit.

Interpolation formulas which are applicable only to a single function are rarely advantageous, because as much time is often consumed in looking them up as is saved by employing them; but some formulas applicable to hyperbolic functions are so simple that when once suggested they can hardly be forgotten. Thus, Taylor's theorem gives at once

$$\cosh (n + nu) = \cosh n + n \sinh n + \frac{n^2 u^2}{2!} \cosh n + \frac{n^3 u^3}{3!} \sinh n + \dots,$$

and the form for the sine is of course similar. Again, when, as here, the cosine is tabulated with an argument in terms of radians,

$$\cos (n + nu) = \cos nu = n \sin n - \frac{n^3 u^3}{3!} \cos n + \frac{n^5 u^5}{5!} \sin n + \dots,$$

the series for the sine being similar.

So, too,

$$\begin{aligned} \log_e (n + nu) &= \log_e n + \log_e \left(1 + \frac{nu}{n} \right) \\ &= \frac{nu}{n} - \frac{1}{2} \frac{n^2 u^2}{n^2} + \frac{1}{3} \frac{n^3 u^3}{n^3} - \frac{1}{4} \frac{n^4 u^4}{n^4} + \dots \quad \left(\frac{n^2}{n^2} < 1 \right) \end{aligned}$$

Simplest of all is the exponential,

$$\begin{aligned} e^{n+nu} &= e^n \cdot e^{nu} = e^n (e^{nu} - 1) + e^n \left(nu + \frac{n^2 u^2}{2!} + \frac{n^3 u^3}{3!} + \dots \right) \dots (c), \\ &= e^n \left(1 + 0.01 n + 0.0005 n^2 + 0.000000167 n^3 + \dots \right), \quad (n = 0.01) \\ &= e^n \left(1 + 0.001 n + 0.0000005 n^2 + \dots \right), \quad (n = 0.001) \end{aligned}$$

The series in nu may be replaced by h , and this may have any finite value. Especially when a computing machine is available, this formula is easily applied and is, of course, rigorous.

From time to time inverse interpolation by a method more accurate than first differences is called for; indeed, whenever interpolation of a function by higher differences is needful, it is equally needful that the argument corresponding to a given function should be ascertained by a like process. The method ordinarily pursued in such cases is to estimate two values of the argument, one a little greater and the other a little less than that of the required argument, interpolate corresponding values of the function, and finally interpolate linearly over the reduced interval for a final value of the argument.

Another method consists in interpolating values of the function and its derivatives for an approximate value of the required interval and then computing a correction to this approximate value by means of a reversed Taylor's series.¹

If second differences only are to be taken into account, the usual method of procedure is to estimate an approximate value of n , say n' , and with this estimated value we interpolate linearly as before and find the value of ${}_w F'_x$,

corresponding to one-half of the estimated interval $\left(\frac{n'}{2}\right)$. Then the required interval (n) is equal to the difference between the given value and the nearest tabular of the function divided by ${}_w F'_x$. This method is in fact simply the reverse of the one for direct interpolation. A recomputation is of course necessary if the values of n and n' are not practically the same. As an illustration, find n when $\log_{10} \sinh n = 7.48287$. We first compute

$$n' = \frac{7.48287 - 7.47712}{1.438,0} = 0.4,$$

then the value of ${}_w F'_x$ in terms of the last tabular unit is found as before

by linear interpolation to be 1.438,0. Hence

$$n = \frac{7.48287 - 7.47712}{1.438,0} = 0.40 \text{ and } n = 0.40304.$$

Since the estimated and computed values of the interval agree, there is no need of a recomputation.

The methods which are based upon an estimated value of the argument are unsystematic and clumsy. It is much better to use a formula which gives the required result by a direct and rigorous method. To find such a formula, divide Taylor's series (eq. *a*) by ${}_w F'_x$ and put

$$n_1 = \frac{F_n - F_1}{{}_w F'_x}; f_1 = \frac{{}_w F''_x}{2 {}_w F'_x}; f_2 = \frac{{}_w F'''_x}{6 {}_w F'_x}; f_3 = \frac{{}_w F^{(4)}_x}{24 {}_w F'_x}; f_4 = \frac{{}_w F^{(5)}_x}{120 {}_w F'_x};$$

then the interpolation formula may be written

$$n_1 = n + f_1 n^2 + f_2 n^3 + f_3 n^4 + f_4 n^5.$$

Reversing this series in accordance with the relation,²

$$\begin{aligned} x &= \frac{y}{a_0} + \frac{y^2}{a_0^2} (-a_1) + \frac{y^3}{a_0^3} (-a_0 a_2 + 2 a_1^2) \\ &\quad + \frac{y^4}{a_0^4} (-a_0^2 a_3 + 5 a_0 a_1 a_2 - 5 a_1^3) \\ &\quad + \frac{y^5}{a_0^5} (-a_0^3 a_4 + 3 a_0^2 a_2^2 + 2 a_1 a_3 - 2! a_0 a_1^2 a_2 + 14 a_1^4), \end{aligned}$$

¹ Rice's *Theory and Practice of Interpolation*, section 83.

² Prof. James McMahon: "On the General Term in the Reversion of Series," *Bull. Am. Math. Soc.*, April, 1896.

which is the reversed series of

$$y = a_0 x + a_1 x^2 + a_2 x^3 + a_3 x^4 + a_4 x^5;$$

and rearranging the terms,¹

$$\begin{aligned} n = n_1 + n_2 [-n_1 f_1 + 2 (n_1 f_1)^2 - 5 (n_1 f_1)^3 + 14 (n_1 f_1)^4 + \dots] \\ + n_2^2 [n_1 f_1 (-1 + 5 (n_1 f_1) - 21 (n_1 f_1)^2 + \dots)] \\ + n_2^3 [n_1 f_1 (-1 + 6 n_1 f_1) + 3 (n_1 f_1)^2 + \dots] \\ + n_2^4 [-n_1 f_1 + \dots] \dots \dots \dots (d). \end{aligned}$$

In the actual computation it is convenient to put

$$r = \frac{n_1}{2 \omega F'_0};$$

then, when successive values of $\omega F'_0$ are tabulated in units of the last decimal place, and Stirling's coefficients are used,

$$\begin{aligned} n_1 f_1 &= r \omega (a_0 - \frac{1}{2} \gamma_0) & n_1 f_2 &= \frac{1}{2} r \omega (\beta_0 - \frac{1}{12} \delta_0) \\ n_1 f_4 &= \frac{1}{12} r \omega \gamma_0 & n_1 f_5 &= \frac{1}{24} r \omega \delta_0. \end{aligned}$$

The formula is rigorous inclusive of fifth differences, and does not require the computation of an approximate value of n . It is applicable to any function or series of tabulated values whose successive derivatives become evanescent. It is particularly convenient when differences higher than the second are neglected. The formula then becomes

$$n = n_1 + n_1 [-r \omega a_0 + 2 (r \omega a_0)^2 - 5 (r \omega a_0)^3 + 14 (r \omega a_0)^4].$$

Since $r \omega a_0$ is a very small quantity, the higher powers are seldom needed, and, should they be required, are easily taken into account. As an example, let it be required to find n when $\log_{10} \sinh n = 7.48287$. We compute

$$n_1 = \frac{7.48287 - 7.47712}{1447.7} = 0.40$$

$$r = \frac{n_1}{2 \omega F'_0} = \frac{0.40}{2 \times 1447.7} = 0.0001;$$

and

$$n_1 r \omega a_0 = 0.40 \times 0.0001 \times (-48.3) = 0.00.$$

Hence $n = n_1 = 0.40$ and $n = 0.00304$, the same as obtained by the other method.

When $F_0 = e^a$, it is easily shown, either by means of series (d) or by independent methods, that

$$\begin{aligned} n \omega &= \log (1 + n_1 \omega) \dots \dots \dots (e), \\ n &= + n_1 - 0.005 n_1^2 + 0.000,033 n_1^3 + \dots, \quad (\omega = 0.01) \\ n &= + n_1 - 0.0005 n_1^2 + \dots \dots \dots \quad (\omega = 0.001) \end{aligned}$$

These formulæ afford an easy means of finding the natural logarithm of a

¹ See, also, "Inverse Interpolation by Means of a Reversed Series," Phil. Mag., May, 1908.

number from the tabular values of $e^{4.5}$. Thus, to find the natural logarithm of 0.9642102, we compute

$$n_1 = \frac{0.9646403 - 0.9642102}{0.0009646403} = 0.44587.$$

Substituting in the last of the above equations

$$n = 0.44587 - 0.0005 \times (0.45)^2 = 0.44577,$$

hence $\text{nat log of } 0.9642102 = -0.0364458$.

One of the most important applications of differences is the detection of errors in values tabulated at equal intervals of the argument. It may be shown by substitution in the schedule of differences (page xxxiv) that an error, $+e$, in F_5 produces errors in the successive differences of any order which are multiples of e , the law of distribution of the multiples being that of the corresponding coefficients of the binomial theorem, and the signs of the errors being alternately positive and negative. Since some order of differences of every continuous function must vanish, the presence of an error in a tabular value must ultimately result in producing successive differences of a certain order which alternate in sign. A comparison of these differences with the corresponding binomial coefficients enables one to estimate the magnitude of the error. Thus in the series which follows:

X	X^2	Δ'	Δ''	Δ'''	$\Delta^{(4)}$
13	2197				
14	2744	547			
		631	84		
15	3375	721	90	6	+ 2
16	4096	819	98	8	- 8
		917	98	0	
17	4913			12	+ 12
18	5832	1027	110		- 8
19	6859	1141	114	4	
		1261		6	+ 2
20	8000				
21	9261				

the alternation in sign occurs in the fourth-order differences, and the numerical values are twice the coefficients of $(a + b)^4$. Hence there is an error of $+2$ units in the value 4915. The corrections $-2, +8, -12, +8, -2$ applied to the fourth differences causes them to vanish, and the corrections $-2, +6, -6, +2$ applied to the third differences reduces them to a constant.

This method is particularly useful in detecting large accidental errors in a series of observed values and in estimating their magnitudes.

DESCRIPTION OF TABLES.

Table I is devoted to 5-place values of the logarithmic hyperbolic sine, cosine, tangent, and cotangent of x expressed in radians. The argument advances by ten-thousandths from 0 to 0.1, by thousandths from 0.1 to 0.2, and by hundredths from 0.2 to 0.3. In this as in all the tables (except Table VII), instead of the first differences, the first derivatives of the functions multiplied by the tabular interval (ω) are tabulated in units of the last decimal place, under the heading $\omega/4'$. As noted above, this agrees with one of the most authoritative modern practice and facilitates interpolation. It did not appear worth while to extend the tabulation of the table beyond 0.3 radians, because higher values are seldom needed; but in Table IV a few very high values of $e^{1/x}$ are given, from which in case of need the hyperbolic functions can be found.

In Table II the natural values of the hyperbolic functions are tabulated for the same arguments as in Table I. In some instances the values are given to one or to two places of decimals more than would be obtained by using the inverse logarithms of the preceding table.

Table III gives $\sin x = i \sinh ix$ and $\cos x = \cosh ix$ with their logarithms to 5 decimal places, the argument x being expressed in radians. The tabulation extends from $x = 0.0000$ to 0.1000, and from $x = 0.100$ to ∞ , because $90^\circ = 1.5707963$ radians; so that, this value of $\frac{\pi}{2}$ being in mind, the table affords the means of finding the sine or cosine of any angle expressed in radians.

Independently of hyperbolic functions, this table is often convenient. It also facilitates the computation of the principal hyperbolic functions of complex variables. Thus

$$\sinh (u + iv) = \sinh u \cos v + i \cosh u \sin v,$$

$$\cosh (u + iv) = \cosh u \cos v + i \sinh u \sin v,$$

to compute either of these functions it is only needful to take out two natural logarithms from Table III, two from Table I, make two additions, and look out two antilogarithms. It is of course conceivable that all the quantities involved should be tabulated once for all; but even if u and v advanced only by hundredths, such a table would occupy 200 pages. To

obtain the functions corresponding to u and v expressed in thousandths would require three interpolations—a process quite as laborious as the use of the tables here given.

A space which would otherwise be vacant is utilized to give the angular measures of the radian arguments, or a table of conversion of radians from

0.0000 to 0.1000 and from 0.100 to 1.000 into degrees, minutes, seconds, and hundredths of a second.

Table IV gives the values of $\log_{10} e^x$, e^x and e^{-x} to 7 decimal places from $x = 0.000$ to 3.000 and from 3.00 to 6.00. The values of e^x and e^{-x} enter into a vast number of equations representing natural phenomena, especially those (as Conrout remarked) which can be classed under the generic denomination of phenomena of absorption or gradual extinction. The ascending and descending exponentials may be regarded at will either as hyperbolic functions or as independent components of hyperbolic functions, since

$$e^{+x} = \cosh x + \sinh x$$

while, on the other hand,

$$\sinh x = \frac{e^x - e^{-x}}{2}; \quad \cosh x = \frac{e^x + e^{-x}}{2};$$

$$\tanh x = \frac{e^x - e^{-x}}{e^x + e^{-x}}; \quad \text{gl } x = a \tanh^{-1} e^x = \frac{x}{a}.$$

It is further evident that a table of e^{+x} is a table of natural antilogarithms. Formula *c* on page xli affords an easy means of obtaining the natural logarithm of a number from the tabular values of e^{+x} . It is of course unnecessary to give the derivative of e^x , since this is e^x , while the derivative e^{-x} is $-e^{-x}$. In general the interpolation or extrapolation of the function is very easy. (See formula *c*, page xxxix). The logarithm of e^{-x} is not given because, being merely the arithmetical complement of the $\log_{10} e^x$, it can be read off as fast as it can be written down.

In any table of $\log_{10} e^x$ where the interval of x is ω , the difference of successive logarithms is constant and equal to $\omega \log_{10} e$ or 0.4342944819. If the logarithm of $e^{x+\omega}$ is required, this will be:

$$(x + \omega) \log_{10} e = \log_{10} e^x + \omega \log_{10} e.$$

Hence it is practicable to prepare an extended table of proportional parts or a table of $\omega \log_{10} e$ which is applicable to any table of $\log_{10} e^x$ when the tabulated values are multiplied by ω . Such an auxiliary table is given at the close of Table IV, in which the argument $\frac{x}{\omega}$ varies from 0.000 to 0.300. If ω is unity, this is merely a 5-place table of $\log_{10} e^x$. If, on the other hand, ω is 0.001, as in the earlier part of Table IV, the auxiliary table gives the increments corresponding to x to 8 places of decimals. Thus, if $\log_{10} e^{0.000245}$ is required, Table IV gives $\log_{10} e^{0.000} = 0.0382179$, the auxiliary table gives for $\frac{x}{\omega} = 0.245$, $\omega \log_{10} e = 0.10640$; and since $\omega = 0.001$, $\omega \omega \log_{10} e = 0.00010640$, which added to $\log_{10} e^{0.000}$, gives $\log_{10} e^{0.000245} = 0.0383243$. In the latter portion of Table IV ω is only 0.01; so that, if the $\log_{10} e^{3.00025}$ is wanted, the main table gives $\log e^{3.000} = 1.3028334$, and ω times $\omega \log e$ is 0.0010640; so that the required number is 1.3038974.

When $\log_{10} e^x$ is required for $x > 6.00$ the auxiliary table is insufficient to give 7-place values. Then the main table, IV, may be used as an auxiliary table. Thus

$$\begin{aligned}\log e^{11.00000} &= \log e^{11} + \log e^{.00000} \\ &= 4.7772393 + 0.0383243 = 4.8155636.\end{aligned}$$

In the second part of Table IV values of e^{-x} and the logarithms of e^x are given, x varying from 1 to 100. The logarithms are given to 10 decimals; the other functions to 9 significant figures. Such high values are seldom needed, but are included here lest these tables might some times fail the computer.

Table V gives the natural logarithms of numbers from 1 to 1000, with their derivatives to 5 places of decimals. These derivatives are merely the reciprocals of the arguments, and since $\log_e \left(\frac{1}{y} \right) = -\log_e y$, the logarithms

of the derivatives are the tabulated logarithms taken negatively. The table thus gives, in addition to the logarithms of 1000 whole numbers, the logarithms of 1000 proper fractions lying between 0.001 and unity.

The interpolation of natural logarithms is much less simple than is that of common logarithms, and this is the main reason why the latter are preferred for computation. A few simple rules, however, facilitate the needful calculations. When the natural logarithm of a vulgar fraction is required it is best to look out the logarithm of both numerator and denominator and subtract. If the natural logarithm is required of a fractional number stated decimally and less than 21,000, no attempt should be made to interpolate it directly, because the third differences of the table cannot be neglected for numbers so near the beginning of the table. If the number lies between 10,000 and 21,000, as, for example, 12,345, it should be written 12.345/10, and the required logarithm will be $\text{nat log } 12.345 - \text{nat log } 10$. It is safe to interpolate the first of these between $\text{nat log } 123$ and $\text{nat log } 124$, using the formula for second differences. If the number whose logarithm is to be found lies between 1 and 10, as, for example, 8.2468, it should be written 824.68/100, so that the required quantity is $\text{nat log } 824.68 - \text{nat log } 100$. The first of these logarithms can be found by using only the mean first differences or the tabulated derivatives between the logarithms of 824 and 825. For values of the argument between 21 and 158 interpolation requires the use of second differences, while above 158 average first differences or the first derivative is sufficiently accurate, inasmuch as the error involved is less than half a unit in the fifth decimal place.

It would be possible to interpolate the negative logarithms of the smaller fractions given by the derivatives—that is, from the reciprocal of 159 on to the end of the table, or for numbers between 0.00628 and 0.00100—but this would not be expedient, because these reciprocals are themselves rounded values. If the natural logarithm of 0.0068352 is wanted as accurately as

the tables will give it, it is best to find the logarithm of 683.52 and to subtract from it the logarithm of 100,000. (See also formula *c*, page xli.)

The use of second differences may be avoided altogether if the computer chooses, for any number not lying between 158 and 1,000 may be multiplied and divided by another number which will bring the numerator within these limits. Thus, if, as before, $\text{ant log } 12.345$ is required, this number may be written $246\ 90/20$, and the natural logarithm of the numerator found by help of the derivative, less $\text{ant log } 20$, is the required value.

The awkwardness of a table of natural logarithms is inherent and cannot be overcome by any device. It depends on the fact that *e* and the base of numeration, the number 10, are incommensurable quantities. If our numeration were duodecimal, as it might have been had six fingers to a hand been the rule instead of the exception, 12 would also have been the most convenient base for a table of logarithms. A great table of natural logarithms, such as Barlow's 8-place table of all numbers from 1 to 10,000, is only a little more convenient than that here offered, and with it, too, it is expedient to multiply any small number by a factor such that the product approaches 10,000.

Table VI gives the values of the gudermannian of x to 7 places from $x = 0.000$ to $x = 3.000$ and from $x = 3.00$ to $x = 6.00$. In this table x is expressed in radians, and $\text{gd } x$ both in radians and in angular measure. For theoretical work the gudermannian in radians is usually the more convenient, but for use in finding hyperbolic functions it must be reduced to an angle.

The gudermannian, $\text{gd } x$, is connected with the hyperbolic functions by the following well-known relations:

$$\sinh x = \tan \text{gd } x; \quad \cosh x = \sec \text{gd } x; \quad \tanh x = \sin \text{gd } x$$

$$\tanh \frac{x}{2} = \tan \frac{1}{2} \text{gd } x; \quad x = \log_e \tan \left(\frac{\pi}{4} + \frac{1}{2} \text{gd } x \right).$$

Thus Table VI, with the help of a 7-place table of logarithms of the circular functions, gives 7-place values of the hyperbolic functions.

The derivative of $\text{gd } x$ is $\text{sech } x$, and can be used independently of the gudermannian.

Table VII is substantially a reversion of Table VI, and gives the anti-gudermannian in terms of the gudermannian, both, however, being expressed in minutes and decimals of a minute. If w is the anti-gudermannian expressed in minutes and x the same function expressed in radians,

$$w = 3437.7468 \ x = 3437.7468 \log_e \tan \left(\frac{\pi}{4} + \frac{1}{2} \text{gd } x \right).$$

Table VII is a table of w , and if w is multiplied by 0.000 2908 8821 the product is x in radians. This table is known to navigators as a table of Meridional Parts for a Spherical Globe. It is frequently of use in the discussion of physical questions and is the very foundation of navigation with Mercator charts. In the more modern works on navigation, however, the

ellipticity of the meridian is allowed for in computing tables of meridional parts, and consequently this table will probably never be reproduced in a navigator. For this reason it is here preserved for computers who are not engaged in navigation.

To test this table, which is borrowed from Inman, 200 of the values, or one in every 27 entries, were compared with Gudermann's 7-decimal place table of the antigudermannian in radian measure. In nearly all cases Inman's last figure was confirmed, but in a few instances the last figure is incorrect by a unit. Inquiry into these cases showed that the maximum error detected was less than 0.006 of a minute. Thus the last figure is not absolutely trustworthy, but is near enough to enable the computer to interpolate accurately to 5 places. If 7 places of the antigudermannian are required, they can be found by inverse interpolation in Table VI.

The earlier part of Table VII may be interpolated by first differences without considerable error. At about $84^{\circ}30'$ one-eighth of the second difference becomes approximately half a unit in the last tabulated place, and beyond this point second differences should be taken into account.

Table VIII is a table for converting radians into angular measure and *vice versa*. A few numerical constants are appended.

HISTORICAL NOTE.

The first and most important application of the functions now known as hyperbolic was made by Gerhard Mercator (Kremer) when he issued his map on "Mercator's projection," in 1569, or, as some say, in 1550, while Bowditch gives the date as 1566. To this day substantially all of the deep-sea navigation of the world is carried on by the help of this projection, which has been modified only to the extent of correcting the "meridional parts" for the ellipticity of the meridian. Mercator's problem was to find a projection on which the loxodrome should be a straight line. The solution is unique, and for a spherical globe is $\lambda = g\theta \frac{m}{a}$ where λ is the latitude, m the "meridional part," or the ordinate on the projection of a point in latitude λ , and a is the radius of the sphere. Of course, this relation gives

$$\frac{m}{a} = \log_e \tan \left(\frac{\pi}{4} + \frac{\lambda}{2} \right)$$

and this Mercator must have tabulated. He published his map without explanation, however, and it was left to Edward Wright in 1599 to state the formula for m .

"The actual inventor of the hyperbolic trigonometry," says Professor McMahon, "was Vincenzo Riccati, S. J. (*Opuscula ad res Phys. et Math. pertinentes*, Bononiae, 1757). He adopted the notation $S\phi$, $C\phi$, for the hyperbolic functions and $s\phi$, $c\phi$ for the circular ones. He proved the addition theorem geometrically, and derived a construction for the solution of a cubic equation. Soon after Daviet de Poiseux showed how to interchange circular and hyperbolic functions by the use of $\sqrt{-1}$, and gave the analogue of de Moivre's theorem, the work resting more on analogy, however, than on clear definition (*Reflex. sur les quant. imag.*, Miscel. Turin Soc., Tom. 1). Johann Heinrich Lambert systematized the subject and gave the serial developments and the exponential expressions. He adopted the notation $\sinh x$, etc., and introduced the transcendent angle, now called the gudermannian, using it in computation and in the construction of tables."

C. Gudermann published an important memoir on Potential or Cyclic-hyperbolic functions in 1830², followed by extended tables. In recogni-

¹ James McMahon, *Hyperbolic Functions*, p. 71.

² Crelle's Journal, vols. 6, 7, 8, and 9. These memoirs were afterwards reprinted in a separate volume. xlviii

tion of his contributions to the subject, Cayley, in 1862,¹ proposed the name *gudermannian*² for the angle which Lambert called transcendental, and which had been variously designated by others. Among other more recent works on hyperbolic functions are Siegmund Günther's *Lehre von den Hyperbelfunctionen*, 1881, and Mr. James McMahon's *Hyperbolic Functions*, 4th edition, 1906.

The first large table of hyperbolic functions we have met with is Legendre's table of $\log \tan \left(\frac{\pi}{4} + \frac{\lambda}{2} \right)$ to 12 decimals. The argument advances

by increments of 30 minutes, but five differences are tabulated to facilitate interpolation.³ Gudermann in 1831 published a table of the same function, using centesimal degrees and advancing by hundredths of a degree ($0^{\circ}0'32''\cdot4$) from 0 to an entire quadrant, the function being given to seven decimal places. This was later supplemented by a table advancing by hundredths of a degree from 88° to 100° , the function being given to eleven decimal places. Gudermann also gave a 9-place table of $\log \cosh x$, $\log \sinh x$, and $\log \tanh x$, from $x = 2,000$ to $x = 5,000$, and a 10-place table of the same functions from $x = 5,000$ to $x = 12,000$.

In 1862 Z. F. W. Gromn⁴ published a 5-place table of hyperbolic functions, the argument being the gudermannian $gd\,x$ in sexagesimal degrees and minutes. He tabulated to this argument $\log \cosh x$, $\log \sinh x$, and the

Briggs logarithm of $\left(\frac{x}{4} + \frac{gd\,x}{2} \right)$ instead of the natural logarithms of this function, following therein a suggestion of Lambert.

In 1890 W. Ljgowski issued his *Tafeln der Hyperbelfunctionen und der Kreisfunctionen*, which is admirably accurate and much the most useful collection of tables of the hyperbolic functions hitherto printed. He filled the gap left by Gudermann by computing $\log \sinh x$, $\log \cosh x$, and $\log \tanh x$ from $x = 0,000$ to 2,000. These he gives to only 5 places, but in addition he tabulates $gd\,x$ in degrees, minutes, seconds, and decimals of a second. These values are in all cases sufficiently accurate to enable the computer to take out from an ordinary table of logarithms 7-place values of the logarithms of $\cosh x$, $\sinh x$, and $\tanh x$. The argument ranges from 0,000 to 2,000 and from 2,000 to 6,000 for $gd\,x$, while $\log \cosh x$ and $\log \sinh x$ are carried up to $x = 9,000$. Ljgowski also gives the natural functions $\cosh x$, $\sinh x$, $\cos x$, and $\sin x$ to 6 decimals for values of x in radians from 0,00 to 2,000, the $\cosh x$ and $\sinh x$ being continued to $x = 8,000$. The only fault we can find with Ljgowski's tables is that the increments of the argument are sometimes inconveniently large.

¹ Phil. Mag., vol. 24, p. 19.

² Thus spelled in Cayley's paper.

³ *Recherches de Cal. Int.*, vol. 2, 1816.

⁴ *Neuere Schriften der Naturforscher-Gesellschaft in Danzig*, vol. 6, 1862.

In 1883 F. W. Newman published a 12-place table¹ of the descending exponential from $x = 0.000$ to $x = 15.349$, and a 14-place table of the same function advancing by two-thousandths from 15.350 to 17.298 and by five-thousandths from 17.298 to 27.635. In the same volume appeared Mr. J. W. L. Glaisher's tables of the ascending and descending exponential to nine significant figures, with 10-place logarithms. The argument advances by one-thousandth to 0.1; by one-hundredth to 2.00; by one-tenth to 10, and by a single unit to 500.

Mr. A. Forti's *Nuove Tavole delle Funzioni Iperboliche* were published in 1892. The hyperbolic sines, cosines, and tangents, together with their logarithms, are given to six decimals from 0.0000 to 0.2000, from 0.200 to 2.000, and from 2.00 to 8.00. Frequent errors, however, of one, two, and three units in the last decimal place practically limit these tables to five places. The Gudermannian is tabulated in degrees, minutes, seconds, and tenths of a second, and the logarithms of the arguments are given to seven places.

In the volume here presented the first thousand values of $\log \sinh x$, $\log \cosh x$, and $\log \tanh x$ have been computed; the remaining values have been taken from the tables of Gudermann or Ligowski. The values of the natural hyperbolic sines and cosines for values of the argument < 0.1 and of the tangents for arguments > 2.0 have been computed; the remaining values have been taken from the tables of Forti and Ligowski. A recomputation of a great number of the borrowed values was made in order to obtain the required accuracy. The values of $\coth x$ and $\log \coth x$ have been computed.

In Table III the sines and cosines were obtained by interpolation from the 7-place values of natural sines and cosines given in Hübner's Vega, where the argument is expressed in angle. The logarithms of the sines and cosines and the angular equivalents of the arguments have been computed.

In Table IV the values of $e^{\pm x}$ are all taken from Newman's great table. Those of $e^{\pm x}$ from 0.000 to 0.100 and from 1 to 100 are from Glaisher's table. The remainder we computed, checking the results by Glaisher's table or by reciprocating. It should be noted that the 7-place table of e^x given in Hübner's edition of Vega is inaccurate and really amounts to no more than a 5-place table. The logarithms of e^x were computed independently of the values of e^x .

Tables V and VIII are borrowed.

The values of gdn in Table VI in terms of angle are taken from Ligowski, excepting the thousand values between $n = 2.000$ and 3.000. These were interpolated from Ligowski's values (2.00 to 3.00) with due checks on his accuracy. In preparing the table of gdn in radians it was necessary for us to make an independent computation of this function from $n = 0.300$ to $n = 3.000$ in order to secure accuracy in the seventh significant figure. The remaining values were derived from Ligowski by converting angles

¹ Cambridge Phil. Soc., Trans., vol. 13, 1883.

into radians. A considerable number of his values, however, were tested by independent computation.

Table VII is borrowed from the Nautical tables of James Inman, revised by James W. Inman, London, 1867, with a few small corrections.

Finally, it may be remarked that the derivatives as given in these tables have been computed for them. They are not derived from the differences of the values as printed, but from more extended values, or are computed independently, and the error of the derivatives as well as of the functions is less than one-half of a unit in the next succeeding decimal place.

These tables were prepared in connection with the geophysical work of the United States Geological Survey, and are published with the permission of the Director.

GEORGE F. BECKER.

C. E. VAN ORSTRAND.

WASHINGTON, D. C., *January, 1908.*

TABLE I

LOGARITHMS OF HYPERBOLIC FUNCTIONS

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.0000	— 00	— 00	0.00000	0.00	— 36	36	00
.0001	6.00000	43420.4	.00000	0.00000	431.761	431.761	.00000
.0002	.00103	2171.47	.00000	.00000	2171.47	2171.47	.00000
.0003	.00712	84295.4	.00000	.00000	84271.3	84270.5	.00000
.0004	.02005	10857.4	.00000	.00000	10850.0	10852.1	.00000
0.0005	6.06807	8085.0	0.00000	0.01	6.06807	8085.0	3.00000
.0006	.27615	7238.7	.00000	.00000	.27615	7238.7	.00000
.0007	.84510	6201.2	.00000	.00000	.84510	6201.2	.15000
.0008	.00300	5438.7	.00000	.00000	.00300	5438.7	.00000
.0009	.05424	4625.5	.00000	.00000	.05424	4625.5	.00000
0.0010	7.00000	4344.0	0.00000	0.02	7.00000	4344.0	3.00000
.0011	.01139	3948.1	.00000	.00000	.01139	3948.1	.00000
.0012	.07918	3019.1	.00000	.00000	.07918	3019.1	.00000
.0013	.11304	2595.7	.00000	.00000	.11304	2595.7	.00000
.0014	.14613	2102.1	.00000	.00000	.14613	2102.1	.00000
0.0015	7.17600	2605.3	0.00000	0.03	7.17600	2605.3	2.81000
.0016	.26012	2714.3	.00000	.00000	.26012	2714.3	.00000
.0017	.23015	2554.7	.00000	.00000	.23015	2554.7	.00000
.0018	.25527	2412.7	.00000	.00000	.25527	2412.7	.00000
.0019	.27875	2285.8	.00000	.00000	.27875	2285.8	.00000
0.0020	7.30000	2171.5	0.00000	0.04	7.30000	2171.5	2.60000
.0021	.32222	2068.1	.00000	.00000	.32222	2068.1	.00000
.0022	.31424	1974.1	.00000	.00000	.31424	1974.1	.00000
.0023	.36173	1888.2	.00000	.00000	.36173	1888.2	.00000
.0024	.38021	1802.0	.00000	.00000	.38021	1802.0	.00000
0.0025	7.30704	1737.2	0.00000	0.05	7.30704	1737.2	2.40000
.0026	.41467	1670.4	.00000	.00000	.41467	1670.4	.00000
.0027	.43136	1608.5	.00000	.00000	.43136	1608.5	.00000
.0028	.44736	1551.1	.00000	.00000	.44736	1551.1	.00000
.0029	.46249	1497.6	.00000	.00000	.46249	1497.6	.00000
0.0030	7.40712	1447.7	0.00000	0.06	7.40712	1447.7	2.20000
.0031	.48036	1400.0	.00000	.00000	.48036	1400.0	.00000
.0032	.50515	1357.2	.00000	.00000	.50515	1357.2	.00000
.0033	.51881	1310.0	.00000	.00000	.51881	1310.0	.00000
.0034	.53148	1277.3	.00000	.00000	.53148	1277.3	.00000
0.0035	7.54407	1240.8	0.00000	0.07	7.54407	1240.8	2.00000
.0036	.55639	1205.4	.00000	.00000	.55639	1205.4	.00000
.0037	.56820	1171.8	.00000	.00000	.56820	1171.8	.00000
.0038	.57978	1140.0	.00000	.00000	.57978	1140.0	.00000
.0039	.59107	1113.0	.00000	.00000	.59107	1113.0	.00000
0.0040	7.60000	1085.7	0.00000	0.08	7.60000	1085.7	1.80000
.0041	.60279	1059.3	.00000	.00000	.60279	1059.3	.00000
.0042	.61245	1034.0	.00000	.00000	.61245	1034.0	.00000
.0043	.62147	1010.0	.00000	.00000	.62147	1010.0	.00000
.0044	.63045	987.0	.00000	.00000	.63045	987.0	.00000
0.0045	7.65321	965.1	0.00000	0.09	7.65321	965.1	1.60000
.0046	.63926	944.1	.00000	.00000	.63926	944.1	.00000
.0047	.64810	924.0	.00000	.00000	.64810	924.0	.00000
.0048	.65624	904.8	.00000	.00000	.65624	904.8	.00000
.0049	.66420	886.1	.00000	.00000	.66420	886.1	.00000
0.0050	7.66807	868.6	0.00001	0.10	7.66807	868.6	1.40000
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$	$\equiv F_4'$
0.0050	7.69867	8946	0.00001	0.00	7.69867	8946	2.30001	
0.0051	7.69957	8951	0.00001		7.69957	8951	2.30143	
0.0052	7.70047	8956	0.00001		7.70047	8956	2.30285	
0.0053	7.70137	8961	0.00001		7.70137	8961	2.30427	
0.0054	7.70227	8966	0.00001		7.70227	8966	2.30569	
0.0055	7.70317	8971	0.00001	0.00	7.70317	8971	2.30711	
0.0056	7.70407	8976	0.00001		7.70407	8976	2.30853	
0.0057	7.70497	8981	0.00001		7.70497	8981	2.30995	
0.0058	7.70587	8986	0.00001		7.70587	8986	2.31137	
0.0059	7.70677	8991	0.00001		7.70677	8991	2.31279	
0.0060	7.70767	8996	0.00001	0.00	7.70767	8996	2.31421	
0.0061	7.70857	9001	0.00001		7.70857	9001	2.31563	
0.0062	7.70947	9006	0.00001		7.70947	9006	2.31705	
0.0063	7.71037	9011	0.00001		7.71037	9011	2.31847	
0.0064	7.71127	9016	0.00001		7.71127	9016	2.31989	
0.0065	7.71217	9021	0.00001	0.00	7.71217	9021	2.32131	
0.0066	7.71307	9026	0.00001		7.71307	9026	2.32273	
0.0067	7.71397	9031	0.00001		7.71397	9031	2.32415	
0.0068	7.71487	9036	0.00001		7.71487	9036	2.32557	
0.0069	7.71577	9041	0.00001		7.71577	9041	2.32699	
0.0070	7.71667	9046	0.00001	0.00	7.71667	9046	2.32841	
0.0071	7.71757	9051	0.00001		7.71757	9051	2.32983	
0.0072	7.71847	9056	0.00001		7.71847	9056	2.33125	
0.0073	7.71937	9061	0.00001		7.71937	9061	2.33267	
0.0074	7.72027	9066	0.00001		7.72027	9066	2.33409	
0.0075	7.72117	9071	0.00001	0.00	7.72117	9071	2.33551	
0.0076	7.72207	9076	0.00001		7.72207	9076	2.33693	
0.0077	7.72297	9081	0.00001		7.72297	9081	2.33835	
0.0078	7.72387	9086	0.00001		7.72387	9086	2.33977	
0.0079	7.72477	9091	0.00001		7.72477	9091	2.34119	
0.0080	7.72567	9096	0.00001	0.00	7.72567	9096	2.34261	
0.0081	7.72657	9101	0.00001		7.72657	9101	2.34403	
0.0082	7.72747	9106	0.00001		7.72747	9106	2.34545	
0.0083	7.72837	9111	0.00001		7.72837	9111	2.34687	
0.0084	7.72927	9116	0.00001		7.72927	9116	2.34829	
0.0085	7.73017	9121	0.00001	0.00	7.73017	9121	2.34971	
0.0086	7.73107	9126	0.00001		7.73107	9126	2.35113	
0.0087	7.73197	9131	0.00001		7.73197	9131	2.35255	
0.0088	7.73287	9136	0.00001		7.73287	9136	2.35397	
0.0089	7.73377	9141	0.00001		7.73377	9141	2.35539	
0.0090	7.73467	9146	0.00001	0.00	7.73467	9146	2.35681	
0.0091	7.73557	9151	0.00001		7.73557	9151	2.35823	
0.0092	7.73647	9156	0.00001		7.73647	9156	2.35965	
0.0093	7.73737	9161	0.00001		7.73737	9161	2.36107	
0.0094	7.73827	9166	0.00001		7.73827	9166	2.36249	
0.0095	7.73917	9171	0.00001	0.00	7.73917	9171	2.36391	
0.0096	7.74007	9176	0.00001		7.74007	9176	2.36533	
0.0097	7.74097	9181	0.00001		7.74097	9181	2.36675	
0.0098	7.74187	9186	0.00001		7.74187	9186	2.36817	
0.0099	7.74277	9191	0.00001		7.74277	9191	2.36959	
0.0100	7.74367	9196	0.00001	0.00	7.74367	9196	2.37101	
u	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$	$\equiv F_4'$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$u \text{ } F_1'$	$\log \cosh u$	$u \text{ } F_2'$	$\log \tanh u$	$u \text{ } F_3'$	$\log \coth u$
0.0100	8.000001	434.3	0.000002	13.0	7.999999	-434.3	7.999999
.0101	.000131	439.0	.000002		8.00131	-439.0	7.998689
.0102	.000261	443.8	.000002		.000261	-443.8	7.997379
.0103	.000391	448.5	.000002		.000391	-448.5	7.996069
.0104	.000521	453.3	.000002		.000521	-453.3	7.994759
0.0105	8.01120	458.0	0.000002	13.0	8.01120	-458.0	7.993449
.0106	.001231	462.7	.000002		.001231	-462.7	7.992139
.0107	.002361	467.5	.000002		.002361	-467.5	7.990829
.0108	.003491	472.2	.000002		.003491	-472.2	7.989519
.0109	.004621	477.0	.000002		.004621	-477.0	7.988209
0.0110	8.01130	481.8	0.000002	13.0	8.01130	-481.8	7.986899
.0111	.01131	486.5	.000002		.01131	-486.5	7.985589
.0112	.02261	491.3	.000002		.02261	-491.3	7.984279
.0113	.03391	496.0	.000002		.03391	-496.0	7.982969
.0114	.04521	500.8	.000002		.04521	-500.8	7.981659
0.0115	8.01071	505.5	0.000002	13.0	8.01071	-505.5	7.980349
.0116	.05651	510.3	.000002		.05651	-510.3	7.979039
.0117	.06781	515.0	.000002		.06781	-515.0	7.977729
.0118	.07911	519.8	.000002		.07911	-519.8	7.976419
.0119	.09041	524.5	.000002		.09041	-524.5	7.975109
0.0120	8.00910	529.3	0.000002	13.0	8.00910	-529.3	7.973799
.0121	.09171	534.0	.000002		.09171	-534.0	7.972489
.0122	.10301	538.8	.000002		.10301	-538.8	7.971179
.0123	.11431	543.5	.000002		.11431	-543.5	7.969869
.0124	.12561	548.3	.000002		.12561	-548.3	7.968559
0.0125	8.00750	553.0	0.000002	13.0	8.00750	-553.0	7.967249
.0126	.13691	557.8	.000002		.13691	-557.8	7.965939
.0127	.14821	562.5	.000002		.14821	-562.5	7.964629
.0128	.15951	567.3	.000002		.15951	-567.3	7.963319
.0129	.17081	572.0	.000002		.17081	-572.0	7.962009
0.0130	8.01300	576.8	0.000002	13.0	8.01300	-576.8	7.960699
.0131	.18211	581.5	.000002		.18211	-581.5	7.959389
.0132	.19341	586.3	.000002		.19341	-586.3	7.958079
.0133	.20471	591.0	.000002		.20471	-591.0	7.956769
.0134	.21601	595.8	.000002		.21601	-595.8	7.955459
0.0135	8.01200	600.5	0.000002	13.0	8.01200	-600.5	7.954149
.0136	.22731	605.3	.000002		.22731	-605.3	7.952839
.0137	.23861	610.0	.000002		.23861	-610.0	7.951529
.0138	.24991	614.8	.000002		.24991	-614.8	7.950219
.0139	.26121	619.5	.000002		.26121	-619.5	7.948909
0.0140	8.01090	624.3	0.000002	13.0	8.01090	-624.3	7.947599
.0141	.27251	629.0	.000002		.27251	-629.0	7.946289
.0142	.28381	633.8	.000002		.28381	-633.8	7.944979
.0143	.29511	638.5	.000002		.29511	-638.5	7.943669
.0144	.30641	643.3	.000002		.30641	-643.3	7.942359
0.0145	8.00980	648.0	0.000002	13.0	8.00980	-648.0	7.941049
.0146	.31771	652.8	.000002		.31771	-652.8	7.939739
.0147	.32901	657.5	.000002		.32901	-657.5	7.938429
.0148	.34031	662.3	.000002		.34031	-662.3	7.937119
.0149	.35161	667.0	.000002		.35161	-667.0	7.935809
0.0150	8.00870	671.8	0.000002	13.0	8.00870	-671.8	7.934499
u	$\log \sinh u$	$u \text{ } F_1'$	$\log \cosh u$	$u \text{ } F_2'$	$\log \tanh u$	$u \text{ } F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	x/F'	$\log \cosh x$	x/F'	$\log \tanh x$	x/F'	$\log \coth x$
0.0030	8.17611	283.6	0.00005	0.1	8.17606	283.5	1.82391
0.0031	17613	283.6	0.00005		17614	283.6	1.82406
0.0032	18183	283.7	0.00005		18181	283.7	1.82419
0.0033	18721	283.7	0.00005		18760	283.8	1.82434
0.0034	18751	283.8	0.00005		18749	283.8	1.82451
0.0035	8.19035	283.7	0.00005	0.1	8.19030	283.7	1.82460
0.0036	19034	283.8	0.00005		19039	283.8	1.82471
0.0037	19042	283.9	0.00005		19080	283.9	1.82481
0.0038	19088	284.0	0.00005		19051	284.0	1.82498
0.0039	20142	274.2	0.00005		20130	274.1	1.79893
0.0040	8.20144	274.5	0.00005	0.1	8.20138	274.4	1.79902
0.0041	20161	274.8	0.00005		20199	274.7	1.79914
0.0042	20163	285.1	0.00005		20198	285.0	1.79952
0.0043	21171	274.5	0.00005		21175	274.4	1.79965
0.0044	21180	274.8	0.00005		21180	274.8	1.79980
0.0045	8.21179	273.2	0.00005	0.1	8.21174	273.2	1.79996
0.0046	22181	273.0	0.00005		22187	273.0	1.79993
0.0047	22271	273.1	0.00005		22268	273.0	1.79997
0.0048	22333	273.5	0.00005		22327	273.5	1.79993
0.0049	22701	277.0	0.00005		22708	277.0	1.79995
0.0050	8.22707	255.5	0.00005	0.1	8.22701	255.4	1.79999
0.0051	23302	254.0	0.00005		23305	253.9	1.79995
0.0052	23353	254.5	0.00005		23349	254.4	1.79991
0.0053	23367	254.1	0.00005		23360	254.0	1.79986
0.0054	24057	249.0	0.00005		24051	248.5	1.79989
0.0055	8.24067	248.2	0.00005	0.1	8.24061	248.1	1.79991
0.0056	24351	249.8	0.00005		24347	249.7	1.79993
0.0057	24380	245.1	0.00005		24373	245.0	1.79997
0.0058	24381	244.0	0.00005		24377	244.0	1.79993
0.0059	25088	242.0	0.00005		25081	241.9	1.79999
0.0060	8.25090	241.3	0.00005	0.1	8.25084	241.2	1.79997
0.0061	25770	240.0	0.00005		25764	239.9	1.79997
0.0062	25800	238.7	0.00005		25800	238.6	1.79998
0.0063	26108	237.3	0.00005		26100	237.2	1.79990
0.0064	26181	236.1	0.00005		26177	236.0	1.79993
0.0065	8.26185	234.8	0.00005	0.1	8.26179	234.7	1.79998
0.0066	26405	233.5	0.00005		26400	233.4	1.79994
0.0067	26487	234.3	0.00005		26479	234.2	1.79991
0.0068	26498	231.0	0.00005		26491	230.9	1.79990
0.0069	27049	223.8	0.00005		27041	223.7	1.79990
0.0070	8.27058	228.6	0.00005	0.1	8.27050	228.5	1.79991
0.0071	28006	227.1	0.00005		28000	227.0	1.79992
0.0072	28133	226.2	0.00005		28125	226.1	1.79995
0.0073	28168	225.1	0.00005		28160	225.0	1.79991
0.0074	28383	223.0	0.00005		28375	222.8	1.79995
0.0075	8.28390	222.7	0.00005	0.1	8.28384	222.7	1.79992
0.0076	29128	221.0	0.00005		29120	220.9	1.79990
0.0077	29179	220.5	0.00005		29171	220.4	1.79990
0.0078	29460	219.1	0.00005		29451	219.0	1.79993
0.0079	29688	218.1	0.00005		29680	218.0	1.79990
0.0080	8.30696	217.2	0.00005	0.1	8.30690	217.1	1.79993
x	$\log \sinh x$	x/F'	$\log \cosh x$	x/F'	$\log \tanh x$	x/F'	$\log \coth x$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$
0.0000	8.30106	217.3	0.00000	0.1	8.30097	217.3	1.60203
.0001	.30323	216.1	.00009		.30314	216.0	.60206
.0002	.30538	215.0	.00019		.30529	214.9	.60211
.0003	.30753	214.0	.00029		.30744	214.0	.60216
.0004	.30966	213.0	.00039		.30957	213.0	.60221
0.0005	8.31178	211.9	0.00049	0.1	8.31169	211.8	1.60226
.0006	.31390	210.9	.00059		.31381	210.8	.60231
.0007	.31600	209.8	.00069		.31591	209.7	.60236
.0008	.31809	208.8	.00079		.31800	208.7	.60241
.0009	.32018	207.8	.00089		.32008	207.7	.60246
0.0010	8.32225	206.8	0.00099	0.1	8.32216	206.7	1.60251
.0011	.32431	205.9	.00109		.32422	205.8	.60256
.0012	.32637	204.9	.00119		.32627	204.8	.60261
.0013	.32841	204.0	.00129		.32831	203.9	.60266
.0014	.33045	203.0	.00139		.33035	203.0	.60271
0.0015	8.33247	202.0	0.00149	0.1	8.33237	201.9	1.60276
.0016	.33449	201.1	.00159		.33439	201.0	.60281
.0017	.33649	200.2	.00169		.33639	200.1	.60286
.0018	.33849	199.2	.00179		.33839	199.2	.60291
.0019	.34048	198.3	.00189		.34037	198.2	.60296
0.0020	8.34246	197.3	0.00199	0.1	8.34235	197.3	1.60301
.0021	.34443	196.5	.00209		.34432	196.4	.60306
.0022	.34639	195.7	.00219		.34628	195.6	.60311
.0023	.34834	194.8	.00229		.34823	194.7	.60316
.0024	.35028	193.9	.00239		.35018	193.8	.60321
0.0025	8.35222	193.1	0.00249	0.1	8.35211	193.0	1.60326
.0026	.35415	192.2	.00259		.35403	192.1	.60331
.0027	.35606	191.4	.00269		.35595	191.3	.60336
.0028	.35797	190.5	.00279		.35786	190.4	.60341
.0029	.35987	189.7	.00289		.35976	189.6	.60346
0.0030	8.36177	188.9	0.00299	0.1	8.36165	188.8	1.60351
.0031	.36365	188.0	.00309		.36353	187.9	.60356
.0032	.36551	187.2	.00319		.36539	187.1	.60361
.0033	.36740	186.4	.00329		.36728	186.3	.60366
.0034	.36926	185.6	.00339		.36914	185.5	.60371
0.0035	8.37111	184.8	0.00349	0.1	8.37099	184.7	1.60376
.0036	.37295	184.1	.00359		.37283	184.0	.60381
.0037	.37479	183.3	.00369		.37467	183.2	.60386
.0038	.37662	182.5	.00379		.37650	182.4	.60391
.0039	.37844	181.7	.00389		.37832	181.6	.60396
0.0040	8.38025	181.0	0.00399	0.1	8.38013	180.9	1.60401
.0041	.38206	180.2	.00409		.38193	180.1	.60406
.0042	.38385	179.5	.00419		.38373	179.4	.60411
.0043	.38565	178.8	.00429		.38552	178.7	.60416
.0044	.38743	178.0	.00439		.38730	177.9	.60421
0.0045	8.38921	177.3	0.00449	0.1	8.38908	177.2	1.60426
.0046	.39100	176.5	.00459		.39085	176.5	.60431
.0047	.39277	175.8	.00469		.39261	175.8	.60436
.0048	.39453	175.2	.00479		.39436	175.0	.60441
.0049	.39624	174.5	.00489		.39604	174.3	.60446
0.0050	8.39799	173.8	0.00499	0.1	8.39785	173.6	1.60451
u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\approx F_1'$	$\log \cosh u$	$\approx F_2'$	$\log \tanh u$	$\approx F_3'$	$\log \coth u$
0.0050	8.70700	17.48	0.00014	0.1	8.30705	17.40	1.60115
0.0051	8.70715	17.48	0.00014		8.30720	17.40	0.00121
0.0052	8.70730	17.48	0.00014		8.30735	17.41	5.0049
0.0053	8.70745	17.47	0.00014		8.30750	17.41	5.0057
0.0054	8.70760	17.46	0.00014		8.30765	17.40	5.0065
0.0055	8.70775	17.45	0.00014	0.1	8.30780	17.42	1.50155
0.0056	8.70790	17.45	0.00014		8.30795	17.42	5.0075
0.0057	8.70805	17.45	0.00014		8.30810	17.42	5.0085
0.0058	8.70820	17.44	0.00014		8.30825	17.43	5.0095
0.0059	8.70835	17.43	0.00015		8.30840	17.43	5.0105
0.0060	8.70850	17.43	0.00015	0.1	8.30855	17.43	1.50112
0.0061	8.70865	17.43	0.00015		8.30870	17.43	5.0120
0.0062	8.70880	17.43	0.00015		8.30885	17.43	5.0130
0.0063	8.70895	17.42	0.00015		8.30900	17.44	5.0140
0.0064	8.70910	17.42	0.00015		8.30915	17.44	1.50165
0.0065	8.70925	17.42	0.00015	0.1	8.30930	17.44	5.0155
0.0066	8.70940	17.42	0.00015		8.30945	17.44	5.0165
0.0067	8.70955	17.42	0.00015		8.30960	17.44	5.0175
0.0068	8.70970	17.41	0.00016		8.30975	17.44	5.0185
0.0069	8.70985	17.41	0.00016		8.30990	17.44	1.50180
0.0070	8.71000	17.41	0.00016	0.1	8.31005	17.44	5.0190
0.0071	8.71015	17.41	0.00016		8.31020	17.44	5.0200
0.0072	8.71030	17.41	0.00016		8.31035	17.44	5.0210
0.0073	8.71045	17.41	0.00016		8.31050	17.44	5.0220
0.0074	8.71060	17.40	0.00016		8.31065	17.44	1.50205
0.0075	8.71075	17.40	0.00016	0.1	8.31080	17.44	5.0230
0.0076	8.71090	17.40	0.00016		8.31095	17.44	5.0240
0.0077	8.71105	17.40	0.00016		8.31110	17.44	5.0250
0.0078	8.71120	17.40	0.00016		8.31125	17.44	5.0260
0.0079	8.71135	17.40	0.00016		8.31140	17.44	1.50210
0.0080	8.71150	17.40	0.00016	0.1	8.31155	17.44	5.0270
0.0081	8.71165	17.40	0.00016		8.31170	17.44	5.0280
0.0082	8.71180	17.40	0.00016		8.31185	17.44	5.0290
0.0083	8.71195	17.40	0.00016		8.31200	17.44	5.0300
0.0084	8.71210	17.40	0.00016		8.31215	17.44	1.50215
0.0085	8.71225	17.40	0.00016	0.1	8.31230	17.44	5.0310
0.0086	8.71240	17.40	0.00016		8.31245	17.44	5.0320
0.0087	8.71255	17.40	0.00016		8.31260	17.44	5.0330
0.0088	8.71270	17.40	0.00016		8.31275	17.44	5.0340
0.0089	8.71285	17.40	0.00016		8.31290	17.44	1.50220
0.0090	8.71300	17.40	0.00016	0.1	8.31305	17.44	5.0350
0.0091	8.71315	17.40	0.00016		8.31320	17.44	5.0360
0.0092	8.71330	17.40	0.00016		8.31335	17.44	5.0370
0.0093	8.71345	17.40	0.00016		8.31350	17.44	5.0380
0.0094	8.71360	17.40	0.00016		8.31365	17.44	1.50225
0.0095	8.71375	17.40	0.00016	0.1	8.31380	17.44	5.0390
0.0096	8.71390	17.40	0.00016		8.31395	17.44	5.0400
0.0097	8.71405	17.40	0.00016		8.31410	17.44	5.0410
0.0098	8.71420	17.40	0.00016		8.31425	17.44	5.0420
0.0099	8.71435	17.40	0.00016		8.31440	17.44	1.50230
0.0100	8.71450	17.40	0.00016	0.1	8.31455	17.44	5.0430
u	$\log \tanh u$	$\approx F_4'$	$\log \coth u$	$\approx F_5'$	$\log \sinh u$	$\approx F_6'$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
0.0300	8.47790	144.8	0.00020	0.1	8.47699	144.7	1.52301
0.0301	4.7803	144.3	.00020		4.7814	144.2	52156
0.0302	.8007	143.8	.00020		.47687	143.7	52013
0.0303	.38151	143.4	.00020		.48131	143.3	51886
0.0304	.8294	143.0	.00020		.48274	143.2	51726
0.0305	8.48437	142.4	0.00020	0.1	8.48417	142.3	1.51583
0.0306	.48570	142.0	.00020		.48539	141.8	51441
0.0307	.18721	141.5	.00020		.48700	141.4	51300
0.0308	.8862	141.0	.00021		.48841	141.0	51159
0.0309	.20003	140.6	.00021		.48982	140.5	51018
0.0310	8.49143	140.1	0.00021	0.1	8.49122	140.0	1.50878
0.0311	.40281	139.7	.00021		.40262	139.6	50735
0.0312	.40423	139.2	.00021		.40404	139.1	50592
0.0313	.40565	138.8	.00021		.40546	138.7	50450
0.0314	.40700	138.4	.00021		.40709	138.2	50307
0.0315	8.49848	137.9	0.00022	0.1	8.49827	137.8	1.50163
0.0316	.40896	137.5	.00022		.40854	137.3	50020
0.0317	.50113	137.0	.00022		.50091	137.0	49879
0.0318	.50259	136.6	.00022		.50228	136.5	49732
0.0319	.50385	136.2	.00022		.50364	136.1	49595
0.0320	8.50052	135.8	0.00022	0.1	8.50050	135.6	1.49500
0.0321	.50658	135.3	.00022		.50636	135.2	49354
0.0322	.50793	134.9	.00023		.50771	134.8	49209
0.0323	.50928	134.5	.00023		.50905	134.4	49065
0.0324	.51062	134.1	.00023		.51039	134.0	48921
0.0325	8.51166	133.7	0.00023	0.1	8.51173	133.5	1.48827
0.0326	.51389	133.3	.00023		.51390	133.1	48684
0.0327	.51403	132.9	.00023		.51439	132.7	48541
0.0328	.51505	132.5	.00023		.51572	132.3	48408
0.0329	.51727	132.1	.00023		.51704	131.9	48265
0.0330	8.51850	131.7	0.00024	0.1	8.51836	131.5	1.48163
0.0331	.51991	131.3	.00024		.51967	131.1	48023
0.0332	.52122	130.9	.00024		.52008	130.7	47882
0.0333	.52252	130.5	.00024		.52228	130.3	47742
0.0334	.52383	130.1	.00024		.52358	130.0	47602
0.0335	8.52513	129.7	0.00024	0.1	8.52488	129.5	1.47512
0.0336	.52642	129.3	.00025		.52618	129.2	47362
0.0337	.52771	128.9	.00025		.52747	128.8	47223
0.0338	.52900	128.5	.00025		.52875	128.4	47083
0.0339	.53028	128.2	.00025		.53003	128.0	46947
0.0340	8.53156	127.8	0.00025	0.1	8.53131	127.6	1.46809
0.0341	.53284	127.4	.00025		.53259	127.3	46674
0.0342	.53411	127.0	.00025		.53385	126.9	46534
0.0343	.53538	126.7	.00025		.53512	126.5	46398
0.0344	.53664	126.3	.00025		.53639	126.1	46251
0.0345	8.53791	125.9	0.00026	0.1	8.53765	125.8	1.46123
0.0346	.53916	125.6	.00026		.53890	125.4	46010
0.0347	.54042	125.2	.00026	0.2	.54016	125.1	45881
0.0348	.54169	124.8	.00026		.54140	124.7	45750
0.0349	.54295	124.5	.00026		.54265	124.3	45615
0.0350	8.54416	124.1	0.00027	0.2	8.54389	124.0	1.45481
u	$\log \tanh u$	$= F_1'$	$\log \sec u$	$= F_2'$	$\log \csc u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$
0.0400	8.60218	108.5	0.00035	0.2	8.60218	108.5	1.31817
0.0401	.60216	108.4	.00035		.60216	108.4	.31809
0.0402	.60214	108.2	.00035		.60214	107.9	.31801
0.0403	.60212	107.8	.00035		.60212	107.4	.31793
0.0404	.60210	107.6	.00035		.60210	107.4	.31785
0.0405	8.60207	107.5	0.00035	0.2	8.60207	107.1	1.31778
0.0406	.60205	107.2	.00035		.60205	106.9	.31771
0.0407	.60203	106.8	.00035		.60203	106.6	.31763
0.0408	.60201	106.5	.00035		.60201	106.3	.31755
0.0409	.60198	106.3	.00035		.60198	106.1	.31747
0.0410	8.60195	106.0	0.00035	0.2	8.60195	105.8	1.31740
0.0411	.60193	105.7	.00035		.60193	105.5	.31732
0.0412	.60191	105.5	.00035		.60191	105.3	.31725
0.0413	.60189	105.2	.00035		.60189	105.0	.31717
0.0414	.60187	105.0	.00035		.60187	104.8	.31710
0.0415	8.60184	104.7	0.00035	0.2	8.60184	104.5	1.31703
0.0416	.60182	104.5	.00035		.60182	104.3	.31696
0.0417	.60180	104.2	.00035		.60180	104.0	.31688
0.0418	.60178	104.0	.00035		.60178	103.8	.31681
0.0419	.60176	103.7	.00035		.60176	103.5	.31673
0.0420	8.60173	103.5	0.00035	0.2	8.60173	103.3	1.31666
0.0421	.60171	103.2	.00035		.60171	103.0	.31659
0.0422	.60169	103.0	.00035		.60169	102.8	.31651
0.0423	.60167	102.7	.00035		.60167	102.5	.31644
0.0424	.60165	102.5	.00035		.60165	102.3	.31636
0.0425	8.60162	102.2	0.00035	0.2	8.60162	102.1	1.31629
0.0426	.60160	102.0	.00035		.60160	101.8	.31621
0.0427	.60158	101.8	.00040		.60158	101.6	.31614
0.0428	.60156	101.5	.00040		.60156	101.3	.31606
0.0429	.60154	101.3	.00040		.60154	101.1	.31599
0.0430	8.60151	101.1	0.00040	0.2	8.60151	100.9	1.31592
0.0431	.60149	100.8	.00040		.60149	100.6	.31584
0.0432	.60147	100.6	.00041		.60147	100.4	.31577
0.0433	.60145	100.4	.00041		.60145	100.2	.31569
0.0434	.60143	100.1	.00041		.60143	99.9	.31562
0.0435	8.60140	99.9	0.00041	0.2	8.60140	99.7	1.31555
0.0436	.60138	99.7	.00041		.60138	99.5	.31547
0.0437	.60136	99.4	.00041		.60136	99.3	.31540
0.0438	.60134	99.2	.00042		.60134	99.0	.31532
0.0439	.60132	99.0	.00042		.60132	98.8	.31525
0.0440	8.60129	98.8	0.00042	0.2	8.60129	98.6	1.31518
0.0441	.60127	98.5	.00042		.60127	98.4	.31510
0.0442	.60125	98.3	.00042		.60125	98.1	.31503
0.0443	.60123	98.1	.00043		.60123	97.9	.31495
0.0444	.60121	97.9	.00043		.60121	97.7	.31488
0.0445	8.60118	97.7	0.00043	0.2	8.60118	97.5	1.31481
0.0446	.60116	97.4	.00043		.60116	97.2	.31473
0.0447	.60114	97.2	.00043		.60114	97.0	.31466
0.0448	.60112	97.0	.00044		.60112	96.8	.31458
0.0449	.60110	96.8	.00044		.60110	96.6	.31451
0.0450	8.60107	96.6	0.00044	0.2	8.60107	96.4	1.31444
u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	x/F'	$\log \cosh x$	x/F'	$\log \tanh x$	x/F'	$\log \coth x$
0.0150	8.66349	966	0.00034	0.2	8.65202	964	1.31208
0.0151	66342	964	0.00034		65208	962	1.31012
0.0152	66339	964	0.00034		65211	960	1.31816
0.0153	66335	960	0.00035		65206	957	1.31620
0.0154	66331	957	0.00035		65206	955	1.31424
0.0155	8.66316	955	0.00035	0.2	8.65273	953	1.31229
0.0156	66312	953	0.00035		65276	951	1.31034
0.0157	66307	951	0.00035		65273	949	1.31839
0.0158	66303	949	0.00036		65269	947	1.31644
0.0159	66300	947	0.00036		65269	945	1.31449
0.0160	8.66266	945	0.00036	0.2	8.65215	943	1.31255
0.0161	66263	943	0.00036		65239	941	1.31060
0.0162	66260	941	0.00036		65233	939	1.31865
0.0163	66256	939	0.00037		65227	937	1.31670
0.0164	66252	937	0.00037		65223	935	1.31475
0.0165	8.66216	935	0.00037	0.2	8.65161	933	1.31280
0.0166	66213	933	0.00037		65217	931	1.31085
0.0167	66209	931	0.00037		65210	929	1.31890
0.0168	66205	929	0.00038		65203	927	1.31695
0.0169	66201	927	0.00038		65205	925	1.31500
0.0170	8.66166	925	0.00038	0.2	8.65118	923	1.31305
0.0171	66163	923	0.00038		65220	921	1.31110
0.0172	66160	921	0.00038		65212	919	1.31915
0.0173	66156	919	0.00039		65204	917	1.31720
0.0174	66152	917	0.00039		65205	915	1.31525
0.0175	8.66116	915	0.00039	0.2	8.65067	913	1.31330
0.0176	66113	913	0.00039		65228	911	1.31135
0.0177	66109	911	0.00039		65219	909	1.31940
0.0178	66105	909	0.00039		65211	907	1.31745
0.0179	66101	907	0.00039		65210	905	1.31550
0.0180	8.66066	905	0.00039	0.2	8.65017	903	1.31355
0.0181	66063	903	0.00039		65216	901	1.31160
0.0182	66060	901	0.00039		65207	899	1.31965
0.0183	66056	899	0.00040		65200	897	1.31770
0.0184	66052	897	0.00040		65201	895	1.31575
0.0185	8.66016	895	0.00040	0.2	8.64967	893	1.31380
0.0186	66013	893	0.00040		65221	891	1.31185
0.0187	66010	891	0.00040		65212	889	1.31990
0.0188	66006	889	0.00041		65204	887	1.31795
0.0189	66002	887	0.00041		65205	885	1.31600
0.0190	8.65966	885	0.00041	0.2	8.64917	883	1.31405
0.0191	65963	883	0.00041		65221	881	1.31210
0.0192	65960	881	0.00041		65212	879	1.32015
0.0193	65956	879	0.00042		65204	877	1.31820
0.0194	65952	877	0.00042		65205	875	1.31625
0.0195	8.65916	875	0.00042	0.2	8.64867	873	1.31430
0.0196	65913	873	0.00042		65221	871	1.31235
0.0197	65910	871	0.00042		65212	869	1.32040
0.0198	65906	869	0.00043		65204	867	1.31845
0.0199	65902	867	0.00043		65205	865	1.31650
0.0200	8.65866	865	0.00043	0.2	8.64817	863	1.31455
0.0201	65863	863	0.00043		65221	861	1.31260
0.0202	65860	861	0.00043		65212	859	1.32065
0.0203	65856	859	0.00044		65204	857	1.31870
0.0204	65852	857	0.00044		65205	855	1.31675
0.0205	8.65816	855	0.00044	0.2	8.64767	853	1.31480
0.0206	65813	853	0.00044		65221	851	1.31285
0.0207	65810	851	0.00044		65212	849	1.32090
0.0208	65806	849	0.00045		65204	847	1.31895
0.0209	65802	847	0.00045		65205	845	1.31700
0.0210	8.65766	845	0.00045	0.2	8.64717	843	1.31505
0.0211	65763	843	0.00045		65221	841	1.31310
0.0212	65760	841	0.00045		65212	839	1.32115
0.0213	65756	839	0.00046		65204	837	1.31920
0.0214	65752	837	0.00046		65205	835	1.31725
0.0215	8.65716	835	0.00046	0.2	8.64667	833	1.31530
0.0216	65713	833	0.00046		65221	831	1.31335
0.0217	65710	831	0.00046		65212	829	1.32140
0.0218	65706	829	0.00047		65204	827	1.31945
0.0219	65702	827	0.00047		65205	825	1.31750
0.0220	8.65666	825	0.00047	0.2	8.64617	823	1.31555
0.0221	65663	823	0.00047		65221	821	1.31360
0.0222	65660	821	0.00047		65212	819	1.32165
0.0223	65656	819	0.00048		65204	817	1.31970
0.0224	65652	817	0.00048		65205	815	1.31775
0.0225	8.65616	815	0.00048	0.2	8.64567	813	1.31580
0.0226	65613	813	0.00048		65221	811	1.31385
0.0227	65610	811	0.00048		65212	809	1.32190
0.0228	65606	809	0.00049		65204	807	1.31995
0.0229	65602	807	0.00049		65205	805	1.31800
0.0230	8.65566	805	0.00049	0.2	8.64517	803	1.31605
0.0231	65563	803	0.00049		65221	801	1.31410
0.0232	65560	801	0.00049		65212	799	1.32215
0.0233	65556	799	0.00050		65204	797	1.32020
0.0234	65552	797	0.00050		65205	795	1.31825
0.0235	8.65516	795	0.00050	0.2	8.64467	793	1.31630
0.0236	65513	793	0.00050		65221	791	1.31435
0.0237	65510	791	0.00050		65212	789	1.32240
0.0238	65506	789	0.00051		65204	787	1.32045
0.0239	65502	787	0.00051		65205	785	1.31850
0.0240	8.65466	785	0.00051	0.2	8.64417	783	1.31655
0.0241	65463	783	0.00051		65221	781	1.31460
0.0242	65460	781	0.00051		65212	779	1.32265
0.0243	65456	779	0.00052		65204	777	1.32070
0.0244	65452	777	0.00052		65205	775	1.31875
0.0245	8.65416	775	0.00052	0.2	8.64367	773	1.31680
0.0246	65413	773	0.00052		65221	771	1.31485
0.0247	65410	771	0.00052		65212	769	1.32290
0.0248	65406	769	0.00053		65204	767	1.32095
0.0249	65402	767	0.00053		65205	765	1.31900
0.0250	8.65366	765	0.00053	0.2	8.64317	763	1.31705
0.0251	65363	763	0.00053		65221	761	1.31510
0.0252	65360	761	0.00053		65212	759	1.32315
0.0253	65356	759	0.00054		65204	757	1.32120
0.0254	65352	757	0.00054		65205	755	1.31925
0.0255	8.65316	755	0.00054	0.2	8.64267	753	1.31730
0.0256	65313	753	0.00054		65221	751	1.31535
0.0257	65310	751	0.00054		65212	749	1.32340
0.0258	65306	749	0.00055		65204	747	1.32145
0.0259	65302	747	0.00055		65205	745	1.31950
0.0260	8.65266	745	0.00055	0.2	8.64217	743	1.31755
0.0261	65263	743	0.00055		65221	741	1.31560
0.0262	65260	741	0.00055		65212	739	1.32365
0.0263	65256	739	0.00056		65204	737	1.32170
0.0264	65252	737	0.00056		65205	735	1.31975
0.0265	8.65216	735	0.00056	0.2	8.64167	733	1.31780
0.0266	65213	733	0.00056		65221	731	1.31585
0.0267	65210	731	0.00056		65212	729	1.32390
0.0268	65206	729	0.00057		65204	727	1.32195
0.0269	65202	727	0.00057		65205	725	1.32000
0.0270	8.65166	725	0.00057	0.2	8.64117	723	1.31805
0.0271	65163	723	0.00057		65221	721	1.31610
0.0272	65160	721	0.00057		65212	719	1.32415
0.0273	65156	719	0.00058		65204	717	1.32220
0.0274	65152	717	0.00058		65205	715	1.32025
0.0275	8.65116	715	0.00058	0.2	8.64067	713	1.31830
0.0276	65113	713	0.00058		65221	711	1.31635
0.0277	65110	711	0.00058		65212	709	1.32440
0.0278	65106	709	0.00059		65204	707	1.32245
0.0279	65102	707	0.00059		65205	705	1.32050
0.0280	8.65066	705	0.00059	0.2	8.64017	703	1.31855
0.0281	65063	703	0.00059		65221	701	1.31660
0.0282	65060	701	0.00059		65212	699	1.32465
0.0283	65056	699	0.00060		65204	697	1.32270
0.0284	65052	697	0.00060		65205	695	1.32075
0.0285	8.65016	695	0.00060	0.2	8.63967	693	1.31880
0.0286	65013	693	0.00060		65221	691	1.31685
0.0287	65010	691	0.00060		65212	689	1.32490
0.0288	65006	689	0.00061		65204	687	1.32295
0.0289	65002	687	0.00061		65205	685	1.32100
0.0290	8.64966	685	0.00061	0.2	8.63917	683	1.31905
0.0291	64963	683	0.00061		65221	681	1.31710
0.0292	64960	681	0.00061		65212	679	1.32515
0.0293	64956	679	0.00062		65204	677	1.32320
0.0294	64952	677	0.00062		65205	675	1.32125
0.0295	8.64916	675	0.00062	0.2	8.63867	673	1.31930
0.0296	64913	673	0.00062		65221	671	1.31735
0.0297	64910	671	0.00062		65212	669	

Logarithms of Hyperbolic Functions.

u	log sinh u	u F'	log cosh u	u F'	log tanh u	u F'	log coth u
0.0500	8.66915	85.9	0.00054		8.66851	85.7	1.30139
0.0501	.70022	85.8	.00054	0.2	.66047	85.5	.30053
0.0502	.70030	85.6	.00055		.70031	85.4	.29970
0.0503	.70037	85.4	.00055		.70120	85.2	.29886
0.0504	.70041	85.2	.00055		.70205	85.0	.29804
0.0505	8.70348	85.1	0.00055		8.70302	84.9	1.29708
0.0506	.70354	85.0	.00055	0.2	.70378	84.7	.29622
0.0507	.70359	84.7	.00055		.70461	84.5	.29536
0.0508	.70365	84.6	.00055		.70549	84.3	.29451
0.0509	.70369	84.4	.00055		.70634	84.2	.29365
0.0510	8.70776	84.2	0.00055		8.70719	84.0	1.29281
0.0511	.70781	84.1	.00057	0.2	.70804	83.8	.29196
0.0512	.70785	84.0	.00057		.70889	83.7	.29111
0.0513	.70789	84.7	.00057		.70974	83.5	.29026
0.0514	.71115	84.6	.00057		.71058	83.3	.28942
0.0515	8.71200	84.4	0.00058		8.71142	84.2	1.28858
0.0516	.71203	84.2	.00058	0.2	.71226	84.0	.28774
0.0517	.71208	84.1	.00058		.71310	83.9	.28689
0.0518	.71212	83.9	.00058		.71394	83.7	.28605
0.0519	.71216	83.8	.00058		.71478	83.5	.28522
0.0520	8.71600	83.6	0.00059		8.71561	83.4	1.28439
0.0521	.71703	83.4	.00059	0.2	.71644	83.2	.28355
0.0522	.71707	83.3	.00059		.71728	83.0	.28272
0.0523	.71710	83.1	.00059		.71811	82.9	.28189
0.0524	.71713	83.0	.00059		.71893	82.7	.28107
0.0525	8.72035	82.8	0.00059		8.71976	82.6	1.28024
0.0526	.72119	82.6	.00060	0.2	.72059	82.4	.27941
0.0527	.72121	82.5	.00060		.72141	82.3	.27859
0.0528	.72124	82.3	.00061		.72223	82.1	.27777
0.0529	.72126	82.2	.00061		.72305	81.9	.27695
0.0530	8.72448	82.0	0.00061		8.72387	81.8	1.27613
0.0531	.72539	81.9	.00061	0.2	.72469	81.6	.27531
0.0532	.72542	81.7	.00061		.72550	81.5	.27450
0.0533	.72543	81.6	.00062		.72632	81.3	.27368
0.0534	.72545	81.4	.00062		.72713	81.2	.27287
0.0535	8.72895	81.3	0.00062		8.72794	81.0	1.27206
0.0536	.72897	81.1	.00062	0.2	.72875	80.9	.27125
0.0537	.72898	81.0	.00063		.72956	80.7	.27044
0.0538	.72899	80.8	.00063		.73036	80.6	.26964
0.0539	.72900	80.7	.00063		.73117	80.4	.26883
0.0540	8.73250	80.5	0.00063		8.73197	80.3	1.26803
0.0541	.73341	80.4	.00064	0.2	.73277	80.1	.26723
0.0542	.73343	80.2	.00064		.73357	80.0	.26643
0.0543	.73344	80.1	.00064		.73436	79.8	.26564
0.0544	.73345	79.9	.00064		.73517	79.7	.26483
0.0545	8.73661	79.8	0.00064		8.73597	79.5	1.26403
0.0546	.73747	79.6	.00065	0.2	.73676	79.4	.26324
0.0547	.73749	79.5	.00065		.73755	79.2	.26245
0.0548	.73750	79.3	.00065		.73835	79.1	.26165
0.0549	.73751	79.2	.00065		.73914	78.9	.26086
0.0550	8.74058	79.0	0.00065		8.73993	78.8	1.26007
u	log tanh u	u F'	log coth u	u F'	log tanh u	u F'	log coth u

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.0550	8.74958	790	0.00066	0.2	8.74948	788	1.25007
0.0551	749.12	790	0.00066		749.11	787	1.25009
0.0552	749.20	789	0.00066		749.10	785	1.25010
0.0553	749.26	789	0.00066		749.08	784	1.25012
0.0554	749.33	788	0.00067		749.07	782	1.25013
0.0555	8.74952	787	0.00067	0.2	8.74946	781	1.25015
0.0556	749.41	787	0.00067		749.38	779	1.25017
0.0557	749.48	786	0.00067		749.44	778	1.25019
0.0558	749.54	779	0.00068		749.68	777	1.25022
0.0559	749.61	778	0.00068		749.69	775	1.25023
0.0560	8.74941	776	0.00068	0.2	8.74933	774	1.25027
0.0561	749.69	775	0.00068		749.61	773	1.25030
0.0562	749.76	774	0.00069		749.68	771	1.25032
0.0563	749.83	774	0.00069		749.65	770	1.25035
0.0564	749.91	773	0.00069		749.62	768	1.25038
0.0565	8.74938	772	0.00069	0.2	8.74930	767	1.25041
0.0566	749.98	769	0.00070		749.95	766	1.25045
0.0567	749.94	767	0.00070		749.92	764	1.25048
0.0568	750.01	765	0.00071		749.99	763	1.25052
0.0569	750.08	764	0.00071		749.94	762	1.25055
0.0570	8.74931	763	0.00071	0.2	8.74923	760	1.25059
0.0571	750.06	763	0.00071		750.00	759	1.25061
0.0572	750.14	760	0.00071		750.02	758	1.25068
0.0573	750.20	759	0.00071		750.08	756	1.25072
0.0574	750.27	757	0.00072		750.14	755	1.25076
0.0575	8.74924	756	0.00072	0.2	8.74916	754	1.25081
0.0576	750.35	755	0.00072	0.2	750.31	753	1.25085
0.0577	750.42	754	0.00072	0.3	750.38	751	1.25091
0.0578	750.49	754	0.00073		750.44	750	1.25095
0.0579	750.56	753	0.00073		750.50	748	1.25098
0.0580	8.74917	752	0.00073	0.3	8.74909	747	1.25105
0.0581	750.64	748	0.00073		750.60	746	1.25107
0.0582	750.67	747	0.00073		750.64	745	1.25112
0.0583	750.71	746	0.00073		750.68	743	1.25118
0.0584	750.76	745	0.00074		750.73	742	1.25123
0.0585	8.74910	743	0.00074	0.3	8.74902	741	1.25131
0.0586	750.83	742	0.00075		750.80	740	1.25135
0.0587	750.88	741	0.00075		750.84	738	1.25140
0.0588	750.93	740	0.00075		750.88	737	1.25142
0.0589	750.97	738	0.00075		750.94	736	1.25149
0.0590	8.74903	737	0.00076	0.3	8.74895	734	1.25155
0.0591	751.04	736	0.00076		751.00	733	1.25162
0.0592	751.08	734	0.00076		751.04	732	1.25169
0.0593	751.13	733	0.00076		751.08	731	1.25175
0.0594	751.18	732	0.00077		751.13	729	1.25182
0.0595	8.74897	731	0.00077	0.3	8.74889	728	1.25189
0.0596	751.25	730	0.00077		751.23	727	1.25195
0.0597	751.29	728	0.00077		751.27	726	1.25201
0.0598	751.34	727	0.00078		751.30	725	1.25208
0.0599	751.39	726	0.00078		751.35	723	1.25215
0.0600	8.74891	725	0.00078	0.3	8.74883	722	1.25219
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
0.0000	8.77841	74.5	0.000798	0.3	8.77761	74.5	1.22157
.0001	.77913	74.5	.000798		.77835	74.5	1.22165
.0002	.77984	74.5	.000799		.77906	74.5	1.22173
.0003	.78054	74.5	.000799		.77976	74.5	1.22181
.0004	.78124	74.5	.000799		.78046	74.5	1.22189
0.0005	8.78202	74.5	0.000799	0.3	8.78124	74.5	1.22197
.0006	.78274	74.5	.000800		.78196	74.5	1.22205
.0007	.78345	74.5	.000800		.78266	74.5	1.22213
.0008	.78417	74.5	.000800		.78337	74.5	1.22221
.0009	.78489	74.5	.000800		.78408	74.5	1.22229
0.0010	8.78566	74.5	0.000801	0.3	8.78489	74.5	1.22237
.0011	.78638	74.5	.000801		.78560	74.5	1.22245
.0012	.78709	74.5	.000801		.78631	74.5	1.22253
.0013	.78781	74.5	.000802		.78702	74.5	1.22261
.0014	.78852	74.5	.000802		.78773	74.5	1.22269
0.0015	8.78930	74.5	0.000802	0.3	8.78853	74.5	1.22277
.0016	.78999	74.5	.000802		.78924	74.5	1.22285
.0017	.79070	74.5	.000803		.78995	74.5	1.22293
.0018	.79141	74.5	.000803		.79066	74.5	1.22301
.0019	.79212	74.5	.000803		.79137	74.5	1.22309
0.0020	8.79290	74.5	0.000803	0.3	8.79212	74.5	1.22317
.0021	.79361	74.5	.000804		.79283	74.5	1.22325
.0022	.79432	74.5	.000804		.79354	74.5	1.22333
.0023	.79503	74.5	.000804		.79425	74.5	1.22341
.0024	.79574	74.5	.000804		.79496	74.5	1.22349
0.0025	8.79652	74.5	0.000805	0.3	8.79574	74.5	1.22357
.0026	.79723	74.5	.000805		.79645	74.5	1.22365
.0027	.79794	74.5	.000805		.79716	74.5	1.22373
.0028	.79865	74.5	.000805		.79787	74.5	1.22381
.0029	.79936	74.5	.000805		.79858	74.5	1.22389
0.0030	8.79999	74.5	0.000806	0.3	8.79921	74.5	1.22397
.0031	.80070	74.5	.000806		.79992	74.5	1.22405
.0032	.80141	74.5	.000806		.80063	74.5	1.22413
.0033	.80212	74.5	.000806		.80134	74.5	1.22421
.0034	.80283	74.5	.000806		.80205	74.5	1.22429
0.0035	8.80367	74.5	0.000806	0.3	8.80289	74.5	1.22437
.0036	.80438	74.5	.000807		.80360	74.5	1.22445
.0037	.80509	74.5	.000807		.80431	74.5	1.22453
.0038	.80580	74.5	.000807		.80502	74.5	1.22461
.0039	.80651	74.5	.000807		.80573	74.5	1.22469
0.0040	8.80729	74.5	0.000807	0.3	8.80651	74.5	1.22477
.0041	.80799	74.5	.000808		.80642	74.5	1.22485
.0042	.80870	74.5	.000808		.80713	74.5	1.22493
.0043	.80941	74.5	.000808		.80784	74.5	1.22501
.0044	.81012	74.5	.000808		.80855	74.5	1.22509
0.0045	8.81090	74.5	0.000808	0.3	8.81012	74.5	1.22517
.0046	.81161	74.5	.000809		.80926	74.5	1.22525
.0047	.81232	74.5	.000809		.80997	74.5	1.22533
.0048	.81303	74.5	.000809		.81068	74.5	1.22541
.0049	.81374	74.5	.000809		.81139	74.5	1.22549
0.0050	8.81452	74.5	0.000809	0.3	8.81374	74.5	1.22557
.0051	.81523	74.5	.000810		.81210	74.5	1.22565
.0052	.81594	74.5	.000810		.81281	74.5	1.22573
.0053	.81665	74.5	.000810		.81352	74.5	1.22581
.0054	.81736	74.5	.000810		.81423	74.5	1.22589
0.0055	8.81814	74.5	0.000810	0.3	8.81736	74.5	1.22597
.0056	.81885	74.5	.000811		.81494	74.5	1.22605
.0057	.81956	74.5	.000811		.81565	74.5	1.22613
.0058	.82027	74.5	.000811		.81636	74.5	1.22621
.0059	.82098	74.5	.000811		.81707	74.5	1.22629
0.0060	8.82176	74.5	0.000811	0.3	8.82098	74.5	1.22637
.0061	.82247	74.5	.000812		.81768	74.5	1.22645
.0062	.82318	74.5	.000812		.81839	74.5	1.22653
.0063	.82389	74.5	.000812		.81910	74.5	1.22661
.0064	.82460	74.5	.000812		.81981	74.5	1.22669
0.0065	8.82538	74.5	0.000812	0.3	8.82460	74.5	1.22677
.0066	.82540	74.5	.000813		.82042	74.5	1.22685
.0067	.82611	74.5	.000813		.82113	74.5	1.22693
.0068	.82682	74.5	.000813		.82184	74.5	1.22701
.0069	.82753	74.5	.000813		.82255	74.5	1.22709
0.0070	8.82831	74.5	0.000813	0.3	8.82753	74.5	1.22717
.0071	.82902	74.5	.000814		.82326	74.5	1.22725
.0072	.82973	74.5	.000814		.82397	74.5	1.22733
.0073	.83044	74.5	.000814		.82468	74.5	1.22741
.0074	.83115	74.5	.000814		.82539	74.5	1.22749
0.0075	8.83193	74.5	0.000814	0.3	8.83115	74.5	1.22757
.0076	.83264	74.5	.000815		.82610	74.5	1.22765
.0077	.83335	74.5	.000815		.82681	74.5	1.22773
.0078	.83406	74.5	.000815		.82752	74.5	1.22781
.0079	.83477	74.5	.000815		.82823	74.5	1.22789
0.0080	8.83555	74.5	0.000815	0.3	8.83477	74.5	1.22797
.0081	.83547	74.5	.000816		.82894	74.5	1.22805
.0082	.83618	74.5	.000816		.82965	74.5	1.22813
.0083	.83689	74.5	.000816		.83036	74.5	1.22821
.0084	.83760	74.5	.000816		.83107	74.5	1.22829
0.0085	8.83838	74.5	0.000816	0.3	8.83760	74.5	1.22837
.0086	.83909	74.5	.000817		.83178	74.5	1.22845
.0087	.83980	74.5	.000817		.83249	74.5	1.22853
.0088	.84051	74.5	.000817		.83320	74.5	1.22861
.0089	.84122	74.5	.000817		.83391	74.5	1.22869
0.0090	8.84200	74.5	0.000817	0.3	8.84122	74.5	1.22877
.0091	.84271	74.5	.000818		.83462	74.5	1.22885
.0092	.84342	74.5	.000818		.83533	74.5	1.22893
.0093	.84413	74.5	.000818		.83604	74.5	1.22901
.0094	.84484	74.5	.000818		.83675	74.5	1.22909
0.0095	8.84562	74.5	0.000818	0.3	8.84484	74.5	1.22917
.0096	.84593	74.5	.000819		.83746	74.5	1.22925
.0097	.84664	74.5	.000819		.83817	74.5	1.22933
.0098	.84735	74.5	.000819		.83888	74.5	1.22941
.0099	.84806	74.5	.000819		.83959	74.5	1.22949
0.0100	8.84884	74.5	0.000819	0.3	8.84806	74.5	1.22957

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$
0.0000	8.311230	64.0	0.000000	0.3	8.311230	64.6	1.18770
.0001	8.311230	64.0	.000001		8.311230	64.6	.18771
.0002	8.311230	64.0	.000002		8.311230	64.6	.18772
.0003	8.311230	64.0	.000003		8.311230	64.6	.18773
.0004	8.311230	64.0	.000004		8.311230	64.6	.18774
0.0005	8.311230	64.0	.000005	0.3	8.311230	64.6	1.18775
.0006	8.311230	64.0	.000006		8.311230	64.6	.18776
.0007	8.311230	64.0	.000007		8.311230	64.6	.18777
.0008	8.311230	64.0	.000008		8.311230	64.6	.18778
.0009	8.311230	64.0	.000009		8.311230	64.6	.18779
0.0010	8.311230	64.0	.000010	0.3	8.311230	64.6	1.18780
.0011	8.311230	64.0	.000011		8.311230	64.6	.18781
.0012	8.311230	64.0	.000012		8.311230	64.6	.18782
.0013	8.311230	64.0	.000013		8.311230	64.6	.18783
.0014	8.311230	64.0	.000014		8.311230	64.6	.18784
.0015	8.311230	64.0	.000015		8.311230	64.6	.18785
0.0016	8.311230	64.0	.000016	0.3	8.311230	64.6	1.18786
.0017	8.311230	64.0	.000017		8.311230	64.6	.18787
.0018	8.311230	64.0	.000018		8.311230	64.6	.18788
.0019	8.311230	64.0	.000019		8.311230	64.6	.18789
0.0020	8.311230	64.0	.000020	0.3	8.311230	64.6	1.18790
.0021	8.311230	64.0	.000021		8.311230	64.6	.18791
.0022	8.311230	64.0	.000022		8.311230	64.6	.18792
.0023	8.311230	64.0	.000023		8.311230	64.6	.18793
.0024	8.311230	64.0	.000024		8.311230	64.6	.18794
.0025	8.311230	64.0	.000025		8.311230	64.6	.18795
0.0026	8.311230	64.0	.000026	0.3	8.311230	64.6	1.18796
.0027	8.311230	64.0	.000027		8.311230	64.6	.18797
.0028	8.311230	64.0	.000028		8.311230	64.6	.18798
.0029	8.311230	64.0	.000029		8.311230	64.6	.18799
0.0030	8.311230	64.0	.000030	0.3	8.311230	64.6	1.18800
.0031	8.311230	64.0	.000031		8.311230	64.6	.18801
.0032	8.311230	64.0	.000032		8.311230	64.6	.18802
.0033	8.311230	64.0	.000033		8.311230	64.6	.18803
.0034	8.311230	64.0	.000034		8.311230	64.6	.18804
.0035	8.311230	64.0	.000035		8.311230	64.6	.18805
0.0036	8.311230	64.0	.000036	0.3	8.311230	64.6	1.18806
.0037	8.311230	64.0	.000037		8.311230	64.6	.18807
.0038	8.311230	64.0	.000038		8.311230	64.6	.18808
.0039	8.311230	64.0	.000039		8.311230	64.6	.18809
0.0040	8.311230	64.0	.000040	0.3	8.311230	64.6	1.18810
.0041	8.311230	64.0	.000041		8.311230	64.6	.18811
.0042	8.311230	64.0	.000042		8.311230	64.6	.18812
.0043	8.311230	64.0	.000043		8.311230	64.6	.18813
.0044	8.311230	64.0	.000044		8.311230	64.6	.18814
.0045	8.311230	64.0	.000045		8.311230	64.6	.18815
0.0046	8.311230	64.0	.000046	0.3	8.311230	64.6	1.18816
.0047	8.311230	64.0	.000047		8.311230	64.6	.18817
.0048	8.311230	64.0	.000048		8.311230	64.6	.18818
.0049	8.311230	64.0	.000049		8.311230	64.6	.18819
0.0050	8.311230	64.0	.000050	0.3	8.311230	64.6	1.18820
.0051	8.311230	64.0	.000051		8.311230	64.6	.18821
.0052	8.311230	64.0	.000052		8.311230	64.6	.18822
.0053	8.311230	64.0	.000053		8.311230	64.6	.18823
.0054	8.311230	64.0	.000054		8.311230	64.6	.18824
.0055	8.311230	64.0	.000055		8.311230	64.6	.18825
0.0056	8.311230	64.0	.000056	0.3	8.311230	64.6	1.18826
.0057	8.311230	64.0	.000057		8.311230	64.6	.18827
.0058	8.311230	64.0	.000058		8.311230	64.6	.18828
.0059	8.311230	64.0	.000059		8.311230	64.6	.18829
0.0060	8.311230	64.0	.000060	0.3	8.311230	64.6	1.18830
.0061	8.311230	64.0	.000061		8.311230	64.6	.18831
.0062	8.311230	64.0	.000062		8.311230	64.6	.18832
.0063	8.311230	64.0	.000063		8.311230	64.6	.18833
.0064	8.311230	64.0	.000064		8.311230	64.6	.18834
.0065	8.311230	64.0	.000065		8.311230	64.6	.18835
0.0066	8.311230	64.0	.000066	0.3	8.311230	64.6	1.18836
.0067	8.311230	64.0	.000067		8.311230	64.6	.18837
.0068	8.311230	64.0	.000068		8.311230	64.6	.18838
.0069	8.311230	64.0	.000069		8.311230	64.6	.18839
0.0070	8.311230	64.0	.000070	0.3	8.311230	64.6	1.18840
.0071	8.311230	64.0	.000071		8.311230	64.6	.18841
.0072	8.311230	64.0	.000072		8.311230	64.6	.18842
.0073	8.311230	64.0	.000073		8.311230	64.6	.18843
.0074	8.311230	64.0	.000074		8.311230	64.6	.18844
.0075	8.311230	64.0	.000075		8.311230	64.6	.18845
0.0076	8.311230	64.0	.000076	0.3	8.311230	64.6	1.18846
.0077	8.311230	64.0	.000077		8.311230	64.6	.18847
.0078	8.311230	64.0	.000078		8.311230	64.6	.18848
.0079	8.311230	64.0	.000079		8.311230	64.6	.18849
0.0080	8.311230	64.0	.000080	0.3	8.311230	64.6	1.18850
.0081	8.311230	64.0	.000081		8.311230	64.6	.18851
.0082	8.311230	64.0	.000082		8.311230	64.6	.18852
.0083	8.311230	64.0	.000083		8.311230	64.6	.18853
.0084	8.311230	64.0	.000084		8.311230	64.6	.18854
.0085	8.311230	64.0	.000085		8.311230	64.6	.18855
0.0086	8.311230	64.0	.000086	0.3	8.311230	64.6	1.18856
.0087	8.311230	64.0	.000087		8.311230	64.6	.18857
.0088	8.311230	64.0	.000088		8.311230	64.6	.18858
.0089	8.311230	64.0	.000089		8.311230	64.6	.18859
0.0090	8.311230	64.0	.000090	0.3	8.311230	64.6	1.18860
.0091	8.311230	64.0	.000091		8.311230	64.6	.18861
.0092	8.311230	64.0	.000092		8.311230	64.6	.18862
.0093	8.311230	64.0	.000093		8.311230	64.6	.18863
.0094	8.311230	64.0	.000094		8.311230	64.6	.18864
.0095	8.311230	64.0	.000095		8.311230	64.6	.18865
0.0096	8.311230	64.0	.000096	0.3	8.311230	64.6	1.18866
.0097	8.311230	64.0	.000097		8.311230	64.6	.18867
.0098	8.311230	64.0	.000098		8.311230	64.6	.18868
.0099	8.311230	64.0	.000099		8.311230	64.6	.18869
0.0100	8.311230	64.0	.000100	0.3	8.311230	64.6	1.18870

u	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$	$\equiv F_4'$	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$
0.0000	8.311230	64.6	0.000000	0.3	8.311230	64.0	0.000000	0.3
.0001	8.311230	64.6	.000001		8.311230	64.0	.000001	
.0002	8.311230	64.6	.000002		8.311230	64.0	.000002	
.0003	8.311230	64.6	.000003		8.311230	64.0	.000003	
.0004	8.311230	64.6	.000004		8.311230	64.0	.000004	
.0005	8.311230	64.6	.000005	0.3	8.311230	64.0	.000005	0.3
.0006	8.311230	64.6	.000006		8.311230	64.0	.000006	
.0007	8.311230	64.6	.000007		8.311230	64.0	.000007	
.0008	8.311230	64.6	.000008		8.311230	64.0	.000008	
.0009	8.311230	64.6	.000009		8.311230	64.0	.000009	
0.0010	8.311230	64.6	.000010	0.3	8.311230	64.0	.000010	0.3
.0011	8.311230	64.6	.000011		8.311230	64.0	.000011	
.0012	8.311230	64.6	.000012		8.311230	64.0	.000012	
.0013	8.311230	64.6	.000013		8.311230	64.0	.000013	
.0014	8.311230	64.6	.000014		8.311230	64.0	.000014	
.0015	8.311230	64.6	.000015		8.311230	64.0	.000015	
0.0016	8.311230	64.6	.000016	0.3	8.311230	64.0	.000016	0.3
.0017	8.311230	64.6	.000017		8.311230	64.0	.000017	
.0018	8.311230	64.6	.000018		8.311230	64.0	.000018	
.0019	8.311230	64.6	.000019		8.311230	64.0	.000019	
0.0020	8.311230	64.6	.000020	0.3	8.311230	64.0	.000020	0.3
.0021	8.311230	64.6	.000021		8.311230	64.0	.000021	
.0022	8.311230	64.6	.000022		8.311230	64.0	.000022	
.0023	8.311230	64.6	.000023		8.311230	64.0	.000023	
.0024	8.311230	64.6	.000024		8.311230	64.0	.000024	
.0025	8.311230	64.6	.000025		8.311230	64.0	.000025	
0.0026	8.311230	64.6	.000026	0.3	8.311230	64.0	.000026	0.3
.0027	8.311230	64.6	.000027		8.311230	64.0	.000027	
.0028	8.311230	64.6	.000028		8.311230	64.0	.000028	
.0029	8.311230	64.6	.000029		8.311230	64.0	.000029	
0.0030	8.311230	64.6	.000030	0.3	8.311230	64.0	.000030	0.3
.0031	8.311230	64.6	.000031		8.311230	64.0	.000031	
.0032	8.311230	64.6	.000032		8.311230	64.0	.000032	
.0033	8.311230	64.6	.000033		8.311230	64.0	.000033	
.0034	8.311230	64.6	.000034		8.311230	64.0	.000034	
.0035	8.311230	64.6	.000035		8.311230	64.0	.000035	
0.0036	8.311230	64.6	.000036	0.3	8.311230	64.0	.000036	0.3
.0037	8.311230	64.6	.0000					

Logarithms of Hyperbolic Functions.

u	log sinh u	= F ₁ '	log cosh u	= F ₂ '	log tanh u	= F ₃ '	log coth u
0.0700	8.84445	61.1	0.00000	0.1	8.84449	61.2	1.13264
.0701	8.84607	61.1	.00007		8.84610	61.2	1.13269
.0702	8.84769	61.2	.00016		8.84772	61.2	1.13274
.0703	8.84931	61.2	.00025		8.84934	61.2	1.13279
.0704	8.85093	61.2	.00034		8.85096	61.2	1.13284
0.0705	8.85255	61.2	0.00043	0.1	8.85258	61.2	1.13289
.0706	8.85417	61.2	.00051		8.85420	61.2	1.13294
.0707	8.85579	61.2	.00060		8.85582	61.2	1.13299
.0708	8.85741	61.2	.00069		8.85744	61.2	1.13304
.0709	8.85903	61.2	.00078		8.85906	61.2	1.13309
0.0710	8.86065	61.2	0.00086	0.1	8.86068	61.2	1.13314
.0711	8.86227	61.2	.00095		8.86230	61.2	1.13319
.0712	8.86389	61.2	.00104		8.86392	61.2	1.13324
.0713	8.86551	61.2	.00113		8.86554	61.2	1.13329
.0714	8.86713	61.2	.00122		8.86716	61.2	1.13334
0.0715	8.86875	61.2	0.00130	0.1	8.86878	61.2	1.13339
.0716	8.87037	61.2	.00139		8.87040	61.2	1.13344
.0717	8.87199	61.2	.00148		8.87202	61.2	1.13349
.0718	8.87361	61.2	.00157		8.87364	61.2	1.13354
.0719	8.87523	61.2	.00166		8.87526	61.2	1.13359
0.0720	8.87685	61.2	0.00174	0.1	8.87688	61.2	1.13364
.0721	8.87847	61.2	.00183		8.87850	61.2	1.13369
.0722	8.88009	61.2	.00192		8.88012	61.2	1.13374
.0723	8.88171	61.2	.00201		8.88174	61.2	1.13379
.0724	8.88333	61.2	.00210		8.88336	61.2	1.13384
0.0725	8.88495	61.2	0.00218	0.1	8.88498	61.2	1.13389
.0726	8.88657	61.2	.00227		8.88660	61.2	1.13394
.0727	8.88819	61.2	.00236		8.88822	61.2	1.13399
.0728	8.88981	61.2	.00245		8.88984	61.2	1.13404
.0729	8.89143	61.2	.00254		8.89146	61.2	1.13409
0.0730	8.89305	61.2	0.00262	0.1	8.89308	61.2	1.13414
.0731	8.89467	61.2	.00271		8.89470	61.2	1.13419
.0732	8.89629	61.2	.00280		8.89632	61.2	1.13424
.0733	8.89791	61.2	.00289		8.89794	61.2	1.13429
.0734	8.89953	61.2	.00298		8.89956	61.2	1.13434
0.0735	8.90115	61.2	0.00306	0.1	8.90118	61.2	1.13439
.0736	8.90277	61.2	.00315		8.90280	61.2	1.13444
.0737	8.90439	61.2	.00324		8.90442	61.2	1.13449
.0738	8.90601	61.2	.00333		8.90604	61.2	1.13454
.0739	8.90763	61.2	.00342		8.90766	61.2	1.13459
0.0740	8.90925	61.2	0.00350	0.1	8.90928	61.2	1.13464
.0741	8.91087	61.2	.00359		8.91090	61.2	1.13469
.0742	8.91249	61.2	.00368		8.91252	61.2	1.13474
.0743	8.91411	61.2	.00377		8.91414	61.2	1.13479
.0744	8.91573	61.2	.00386		8.91576	61.2	1.13484
0.0745	8.91735	61.2	0.00394	0.1	8.91738	61.2	1.13489
.0746	8.91897	61.2	.00403		8.91900	61.2	1.13494
.0747	8.92059	61.2	.00412		8.92062	61.2	1.13499
.0748	8.92221	61.2	.00421		8.92224	61.2	1.13504
.0749	8.92383	61.2	.00430		8.92386	61.2	1.13509
0.0750	8.92545	61.2	0.00438	0.1	8.92548	61.2	1.13514
u	log tan u	= F ₄ '	log sec u	= F ₅ '	log sin u	= F ₆ '	log cos u

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\sinh u$	$\log \cosh u$	$\cosh u$	$\log \tanh u$	$\tanh u$	$\log \coth u$
0.0050	8.87517	50.0	0.00122	0.1	8.87515	57.7	1.12575
0.0051	8.87563	50.0	0.00122	0.1	8.87562	57.6	1.12588
0.0052	8.87604	50.0	0.00123	0.1	8.87602	57.5	1.12600
0.0053	8.87645	50.0	0.00123	0.1	8.87643	57.5	1.12612
0.0054	8.87685	50.0	0.00123	0.1	8.87683	57.4	1.12624
0.0055	8.87726	50.0	0.00124	0.1	8.87724	57.3	1.12636
0.0056	8.87766	50.0	0.00124	0.1	8.87764	57.2	1.12648
0.0057	8.87806	50.0	0.00124	0.1	8.87804	57.2	1.12660
0.0058	8.87846	50.0	0.00125	0.1	8.87844	57.1	1.12672
0.0059	8.87886	50.0	0.00125	0.1	8.87884	57.0	1.12684
0.0060	8.87926	50.0	0.00125	0.1	8.87924	56.9	1.12696
0.0061	8.87966	50.0	0.00125	0.1	8.87964	56.8	1.12708
0.0062	8.88006	50.0	0.00125	0.1	8.88004	56.8	1.12720
0.0063	8.88046	50.0	0.00125	0.1	8.88044	56.7	1.12732
0.0064	8.88086	50.0	0.00125	0.1	8.88084	56.7	1.12744
0.0065	8.88126	50.0	0.00125	0.1	8.88124	56.6	1.12756
0.0066	8.88166	50.0	0.00125	0.1	8.88164	56.5	1.12768
0.0067	8.88206	50.0	0.00125	0.1	8.88204	56.5	1.12780
0.0068	8.88246	50.0	0.00125	0.1	8.88244	56.4	1.12792
0.0069	8.88286	50.0	0.00125	0.1	8.88284	56.4	1.12804
0.0070	8.88326	50.0	0.00125	0.1	8.88324	56.3	1.12816
0.0071	8.88366	50.0	0.00125	0.1	8.88364	56.3	1.12828
0.0072	8.88406	50.0	0.00125	0.1	8.88404	56.2	1.12840
0.0073	8.88446	50.0	0.00125	0.1	8.88444	56.2	1.12852
0.0074	8.88486	50.0	0.00125	0.1	8.88484	56.1	1.12864
0.0075	8.88526	50.0	0.00125	0.1	8.88524	56.1	1.12876
0.0076	8.88566	50.0	0.00125	0.1	8.88564	56.0	1.12888
0.0077	8.88606	50.0	0.00125	0.1	8.88604	56.0	1.12900
0.0078	8.88646	50.0	0.00125	0.1	8.88644	55.9	1.12912
0.0079	8.88686	50.0	0.00125	0.1	8.88684	55.9	1.12924
0.0080	8.88726	50.0	0.00125	0.1	8.88724	55.8	1.12936
0.0081	8.88766	50.0	0.00125	0.1	8.88764	55.8	1.12948
0.0082	8.88806	50.0	0.00125	0.1	8.88804	55.7	1.12960
0.0083	8.88846	50.0	0.00125	0.1	8.88844	55.7	1.12972
0.0084	8.88886	50.0	0.00125	0.1	8.88884	55.6	1.12984
0.0085	8.88926	50.0	0.00125	0.1	8.88924	55.6	1.12996
0.0086	8.88966	50.0	0.00125	0.1	8.88964	55.5	1.13008
0.0087	8.89006	50.0	0.00125	0.1	8.89004	55.5	1.13020
0.0088	8.89046	50.0	0.00125	0.1	8.89044	55.4	1.13032
0.0089	8.89086	50.0	0.00125	0.1	8.89084	55.4	1.13044
0.0090	8.89126	50.0	0.00125	0.1	8.89124	55.3	1.13056
0.0091	8.89166	50.0	0.00125	0.1	8.89164	55.3	1.13068
0.0092	8.89206	50.0	0.00125	0.1	8.89204	55.2	1.13080
0.0093	8.89246	50.0	0.00125	0.1	8.89244	55.2	1.13092
0.0094	8.89286	50.0	0.00125	0.1	8.89284	55.1	1.13104
0.0095	8.89326	50.0	0.00125	0.1	8.89324	55.1	1.13116
0.0096	8.89366	50.0	0.00125	0.1	8.89364	55.0	1.13128
0.0097	8.89406	50.0	0.00125	0.1	8.89404	55.0	1.13140
0.0098	8.89446	50.0	0.00125	0.1	8.89444	54.9	1.13152
0.0099	8.89486	50.0	0.00125	0.1	8.89484	54.9	1.13164
0.0100	8.89526	50.0	0.00125	0.1	8.89524	54.8	1.13176
0.0101	8.89566	50.0	0.00125	0.1	8.89564	54.7	1.13188
0.0102	8.89606	50.0	0.00125	0.1	8.89604	54.7	1.13200
0.0103	8.89646	50.0	0.00125	0.1	8.89644	54.6	1.13212
0.0104	8.89686	50.0	0.00125	0.1	8.89684	54.6	1.13224
0.0105	8.89726	50.0	0.00125	0.1	8.89724	54.5	1.13236
0.0106	8.89766	50.0	0.00125	0.1	8.89764	54.5	1.13248
0.0107	8.89806	50.0	0.00125	0.1	8.89804	54.4	1.13260
0.0108	8.89846	50.0	0.00125	0.1	8.89844	54.4	1.13272
0.0109	8.89886	50.0	0.00125	0.1	8.89884	54.3	1.13284
0.0110	8.89926	50.0	0.00125	0.1	8.89924	54.3	1.13296
0.0111	8.89966	50.0	0.00125	0.1	8.89964	54.2	1.13308
0.0112	8.89996	50.0	0.00125	0.1	8.89994	54.2	1.13320
0.0113	8.90036	50.0	0.00125	0.1	8.90034	54.1	1.13332
0.0114	8.90076	50.0	0.00125	0.1	8.90074	54.1	1.13344
0.0115	8.90116	50.0	0.00125	0.1	8.90114	54.0	1.13356
0.0116	8.90156	50.0	0.00125	0.1	8.90154	54.0	1.13368
0.0117	8.90196	50.0	0.00125	0.1	8.90194	53.9	1.13380
0.0118	8.90236	50.0	0.00125	0.1	8.90234	53.9	1.13392
0.0119	8.90276	50.0	0.00125	0.1	8.90274	53.8	1.13404
0.0120	8.90316	50.0	0.00125	0.1	8.90314	53.8	1.13416
0.0121	8.90356	50.0	0.00125	0.1	8.90354	53.7	1.13428
0.0122	8.90396	50.0	0.00125	0.1	8.90394	53.7	1.13440
0.0123	8.90436	50.0	0.00125	0.1	8.90434	53.6	1.13452
0.0124	8.90476	50.0	0.00125	0.1	8.90474	53.6	1.13464
0.0125	8.90516	50.0	0.00125	0.1	8.90514	53.5	1.13476
0.0126	8.90556	50.0	0.00125	0.1	8.90554	53.5	1.13488
0.0127	8.90596	50.0	0.00125	0.1	8.90594	53.4	1.13500
0.0128	8.90636	50.0	0.00125	0.1	8.90634	53.4	1.13512
0.0129	8.90676	50.0	0.00125	0.1	8.90674	53.3	1.13524
0.0130	8.90716	50.0	0.00125	0.1	8.90714	53.3	1.13536
0.0131	8.90756	50.0	0.00125	0.1	8.90754	53.2	1.13548
0.0132	8.90796	50.0	0.00125	0.1	8.90794	53.2	1.13560
0.0133	8.90836	50.0	0.00125	0.1	8.90834	53.1	1.13572
0.0134	8.90876	50.0	0.00125	0.1	8.90874	53.1	1.13584
0.0135	8.90916	50.0	0.00125	0.1	8.90914	53.0	1.13596
0.0136	8.90956	50.0	0.00125	0.1	8.90954	53.0	1.13608
0.0137	8.90996	50.0	0.00125	0.1	8.90994	52.9	1.13620
0.0138	8.91036	50.0	0.00125	0.1	8.91034	52.9	1.13632
0.0139	8.91076	50.0	0.00125	0.1	8.91074	52.8	1.13644
0.0140	8.91116	50.0	0.00125	0.1	8.91114	52.8	1.13656
0.0141	8.91156	50.0	0.00125	0.1	8.91154	52.7	1.13668
0.0142	8.91196	50.0	0.00125	0.1	8.91194	52.7	1.13680
0.0143	8.91236	50.0	0.00125	0.1	8.91234	52.6	1.13692
0.0144	8.91276	50.0	0.00125	0.1	8.91274	52.6	1.13704
0.0145	8.91316	50.0	0.00125	0.1	8.91314	52.5	1.13716
0.0146	8.91356	50.0	0.00125	0.1	8.91354	52.5	1.13728
0.0147	8.91396	50.0	0.00125	0.1	8.91394	52.4	1.13740
0.0148	8.91436	50.0	0.00125	0.1	8.91434	52.4	1.13752
0.0149	8.91476	50.0	0.00125	0.1	8.91474	52.3	1.13764
0.0150	8.91516	50.0	0.00125	0.1	8.91514	52.3	1.13776
0.0151	8.91556	50.0	0.00125	0.1	8.91554	52.2	1.13788
0.0152	8.91596	50.0	0.00125	0.1	8.91594	52.2	1.13800
0.0153	8.91636	50.0	0.00125	0.1	8.91634	52.1	1.13812
0.0154	8.91676	50.0	0.00125	0.1	8.91674	52.1	1.13824
0.0155	8.91716	50.0	0.00125	0.1	8.91714	52.0	1.13836
0.0156	8.91756	50.0	0.00125	0.1	8.91754	52.0	1.13848
0.0157	8.91796	50.0	0.00125	0.1	8.91794	51.9	1.13860
0.0158	8.91836	50.0	0.00125	0.1	8.91834	51.9	1.13872
0.0159	8.91876	50.0	0.00125	0.1	8.91874	51.8	1.13884
0.0160	8.91916	50.0	0.00125	0.1	8.91914	51.8	1.13896
0.0161	8.91956	50.0	0.00125	0.1	8.91954	51.7	1.13908
0.0162	8.91996	50.0	0.00125	0.1	8.91994	51.7	1.13920
0.0163	8.92036	50.0	0.00125	0.1	8.92034	51.6	1.13932
0.0164	8.92076	50.0	0.00125	0.1	8.92074	51.6	1.13944
0.0165	8.92116	50.0	0.00125	0.1	8.92114	51.5	1.13956
0.0166	8.92156	50.0	0.00125	0.1	8.92154	51.5	1.13968
0.0167	8.92196	50.0	0.00125	0.1	8.92194	51.4	1.13980
0.0168	8.92236	50.0	0.00125	0.1	8.92234	51.4	1.13992
0.0169	8.92276	50.0	0.00125	0.1	8.92274	51.3	1.14004
0.0170	8.92316	50.0	0.00125	0.1	8.92314	51.3	1.14016
0.0171	8.92356	50.0	0.00125	0.1	8.92354	51.2	1.14028
0.0172	8.92396	50.0	0.00125	0.1	8.92394	51.2	1.14040
0.0173	8.92436	50.0	0.00125	0.1	8.92434	51.1	1.14052
0.0174	8.92476	50.0	0.00125	0.1	8.92474	51.1	1.14064
0.0175	8.92516	50.0	0.00125	0.1	8.92514	51.0	1.14076
0.0176	8.92556	50.0	0.00125	0.1	8.92554	51.0	1.14088
0.0177	8.92596	50.0	0.00125	0.1	8.92594	50.9	1.14100
0.0178	8.92636	50.0	0.00125	0.1	8.92634	50.9	1.14112
0.0179	8.92676	50.0	0.00125	0.1	8.92674	50.8	1.14124
0.0180	8.92716	50.0	0.00125	0.1	8.92714	50.8	1.14136
0.0181	8.92756	50.0	0.00125	0.1	8.92754	50.7	1.14148
0.0182	8.92796	50.0	0.00125	0.1	8.92794	50.7	1.14160
0.0183	8.92836	50.0	0.00125	0.1	8.92834	50.6	1.14172
0.018							

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.0800	8.102353	54.4	0.00120	0.1	8.102106	54.1	1.00284
.0801	.00100	54.3	.00119		.00271	54.0	.00279
.0802	.00200	54.3	.00119		.00542	53.9	.00565
.0803	.00300	54.2	.00119		.00813	53.9	.00840
.0804	.00400	54.1	.00119		.01084	53.8	.01168
0.0805	8.102661	54.1	0.00118	0.3	8.102366	53.7	1.002514
.0806	.00500	54.0	.00118	0.3	.00530	53.6	.00490
.0807	.00600	53.9	.00118	0.3	.00801	53.6	.00767
.0808	.00700	53.8	.00118	0.4	.01072	53.5	.01043
.0809	.00800	53.8	.00118	0.4	.01343	53.4	.01319
0.0810	8.102966	53.7	0.00117	0.1	8.102671	53.3	1.002216
.0811	.00900	53.7	.00117		.00817	53.3	.00950
.0812	.01000	53.6	.00117		.01088	53.2	.01210
.0813	.01100	53.5	.00117		.01359	53.1	.01470
.0814	.01200	53.5	.00117		.01630	53.0	.01730
0.0815	8.103261	53.4	0.00116	0.1	8.102966	52.9	1.001880
.0816	.01300	53.3	.00116	0.1	.01901	52.9	.01987
.0817	.01400	53.3	.00116		.02172	52.8	.02247
.0818	.01500	53.2	.00116		.02443	52.7	.02517
.0819	.01600	53.1	.00116		.02714	52.6	.02787
0.0820	8.103566	53.1	0.00115	0.3	8.103271	52.5	1.001596
.0821	.01700	53.0	.00115		.02985	52.4	.02957
.0822	.01800	53.0	.00115		.03256	52.3	.03227
.0823	.01900	52.9	.00115		.03527	52.2	.03497
.0824	.02000	52.8	.00115		.03798	52.1	.03768
0.0825	8.103861	52.8	0.00114	0.1	8.103566	52.1	1.001313
.0826	.02100	52.7	.00114	0.1	.04069	52.0	.04039
.0827	.02200	52.6	.00114		.04340	51.9	.04310
.0828	.02300	52.6	.00114		.04611	51.8	.04580
.0829	.02400	52.5	.00114		.04882	51.7	.04852
0.0830	8.104166	52.4	0.00113	0.3	8.103871	51.6	1.001022
.0831	.02500	52.4	.00113		.05153	51.5	.05123
.0832	.02600	52.3	.00113		.05424	51.4	.05394
.0833	.02700	52.3	.00113		.05695	51.3	.05665
.0834	.02800	52.2	.00113		.05966	51.2	.05936
0.0835	8.104461	52.1	0.00112	0.1	8.104166	51.1	1.000742
.0836	.02900	52.1	.00112	0.1	.06237	51.0	.06207
.0837	.03000	52.0	.00112		.06508	50.9	.06478
.0838	.03100	51.9	.00112		.06779	50.8	.06749
.0839	.03200	51.9	.00112		.07050	50.7	.07020
0.0840	8.104766	51.8	0.00111	0.3	8.104471	50.6	1.000474
.0841	.03300	51.8	.00111		.07321	50.5	.07291
.0842	.03400	51.7	.00111		.07592	50.4	.07562
.0843	.03500	51.6	.00111		.07863	50.3	.07833
.0844	.03600	51.6	.00111		.08134	50.2	.08104
0.0845	8.105061	51.5	0.00110	0.1	8.104771	50.1	1.000188
.0846	.03700	51.5	.00110	0.1	.08405	50.0	.08375
.0847	.03800	51.4	.00110		.08676	49.9	.08646
.0848	.03900	51.3	.00110		.08947	49.8	.08917
.0849	.04000	51.3	.00110		.09218	49.7	.09188
0.0850	8.105366	51.2	0.00109	0.3	8.105071	49.6	1.000000
4	$\log \tanh u$	$= F_1'$	$\log \coth u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$	$= F_4'$
0.0000	8.000000	51.2	0.000000	0.0	8.000000	99.8	1.000000	
.0001	8.000015	51.2	0.000000	0.0	8.000015	99.8	1.000015	
.0002	8.000030	51.1	0.000000	0.0	8.000030	99.7	1.000030	
.0003	8.000045	51.0	0.000000	0.0	8.000045	99.7	1.000045	
.0004	8.000060	51.0	0.000000	0.0	8.000060	99.6	1.000060	
.0005	8.000075	50.9	0.000000	0.0	8.000075	99.5	1.000075	
.0006	8.000090	50.9	0.000000	0.0	8.000090	99.5	1.000090	
.0007	8.000105	50.8	0.000000	0.0	8.000105	99.4	1.000105	
.0008	8.000120	50.7	0.000000	0.0	8.000120	99.4	1.000120	
.0009	8.000135	50.7	0.000000	0.0	8.000135	99.3	1.000135	
.0010	8.000150	50.6	0.000000	0.0	8.000150	99.3	1.000150	
.0011	8.000165	50.5	0.000000	0.0	8.000165	99.2	1.000165	
.0012	8.000180	50.5	0.000000	0.0	8.000180	99.2	1.000180	
.0013	8.000195	50.4	0.000000	0.0	8.000195	99.1	1.000195	
.0014	8.000210	50.4	0.000000	0.0	8.000210	99.1	1.000210	
.0015	8.000225	50.3	0.000000	0.0	8.000225	99.0	1.000225	
.0016	8.000240	50.3	0.000000	0.0	8.000240	98.9	1.000240	
.0017	8.000255	50.2	0.000000	0.0	8.000255	98.9	1.000255	
.0018	8.000270	50.2	0.000000	0.0	8.000270	98.8	1.000270	
.0019	8.000285	50.1	0.000000	0.0	8.000285	98.7	1.000285	
.0020	8.000300	50.0	0.000000	0.0	8.000300	98.7	1.000300	
.0021	8.000315	50.0	0.000000	0.0	8.000315	98.6	1.000315	
.0022	8.000330	49.9	0.000000	0.0	8.000330	98.6	1.000330	
.0023	8.000345	49.9	0.000000	0.0	8.000345	98.5	1.000345	
.0024	8.000360	49.8	0.000000	0.0	8.000360	98.5	1.000360	
.0025	8.000375	49.8	0.000000	0.0	8.000375	98.4	1.000375	
.0026	8.000390	49.7	0.000000	0.0	8.000390	98.4	1.000390	
.0027	8.000405	49.7	0.000000	0.0	8.000405	98.3	1.000405	
.0028	8.000420	49.6	0.000000	0.0	8.000420	98.3	1.000420	
.0029	8.000435	49.6	0.000000	0.0	8.000435	98.2	1.000435	
.0030	8.000450	49.5	0.000000	0.0	8.000450	98.2	1.000450	
.0031	8.000465	49.5	0.000000	0.0	8.000465	98.1	1.000465	
.0032	8.000480	49.4	0.000000	0.0	8.000480	98.1	1.000480	
.0033	8.000495	49.4	0.000000	0.0	8.000495	98.0	1.000495	
.0034	8.000510	49.3	0.000000	0.0	8.000510	98.0	1.000510	
.0035	8.000525	49.3	0.000000	0.0	8.000525	97.9	1.000525	
.0036	8.000540	49.2	0.000000	0.0	8.000540	97.9	1.000540	
.0037	8.000555	49.2	0.000000	0.0	8.000555	97.8	1.000555	
.0038	8.000570	49.1	0.000000	0.0	8.000570	97.8	1.000570	
.0039	8.000585	49.1	0.000000	0.0	8.000585	97.7	1.000585	
.0040	8.000600	49.0	0.000000	0.0	8.000600	97.7	1.000600	
.0041	8.000615	49.0	0.000000	0.0	8.000615	97.6	1.000615	
.0042	8.000630	48.9	0.000000	0.0	8.000630	97.6	1.000630	
.0043	8.000645	48.9	0.000000	0.0	8.000645	97.5	1.000645	
.0044	8.000660	48.8	0.000000	0.0	8.000660	97.5	1.000660	
.0045	8.000675	48.8	0.000000	0.0	8.000675	97.4	1.000675	
.0046	8.000690	48.7	0.000000	0.0	8.000690	97.4	1.000690	
.0047	8.000705	48.7	0.000000	0.0	8.000705	97.3	1.000705	
.0048	8.000720	48.6	0.000000	0.0	8.000720	97.3	1.000720	
.0049	8.000735	48.6	0.000000	0.0	8.000735	97.2	1.000735	
.0050	8.000750	48.5	0.000000	0.0	8.000750	97.2	1.000750	
.0051	8.000765	48.5	0.000000	0.0	8.000765	97.1	1.000765	
.0052	8.000780	48.4	0.000000	0.0	8.000780	97.1	1.000780	
.0053	8.000795	48.4	0.000000	0.0	8.000795	97.0	1.000795	
.0054	8.000810	48.3	0.000000	0.0	8.000810	97.0	1.000810	
.0055	8.000825	48.3	0.000000	0.0	8.000825	96.9	1.000825	
.0056	8.000840	48.2	0.000000	0.0	8.000840	96.9	1.000840	
.0057	8.000855	48.2	0.000000	0.0	8.000855	96.8	1.000855	
.0058	8.000870	48.1	0.000000	0.0	8.000870	96.8	1.000870	
.0059	8.000885	48.1	0.000000	0.0	8.000885	96.7	1.000885	
.0060	8.000900	48.0	0.000000	0.0	8.000900	96.7	1.000900	
.0061	8.000915	48.0	0.000000	0.0	8.000915	96.6	1.000915	
.0062	8.000930	47.9	0.000000	0.0	8.000930	96.6	1.000930	
.0063	8.000945	47.9	0.000000	0.0	8.000945	96.5	1.000945	
.0064	8.000960	47.8	0.000000	0.0	8.000960	96.5	1.000960	
.0065	8.000975	47.8	0.000000	0.0	8.000975	96.4	1.000975	
.0066	8.000990	47.7	0.000000	0.0	8.000990	96.4	1.000990	
.0067	8.001005	47.7	0.000000	0.0	8.001005	96.3	1.001005	
.0068	8.001020	47.6	0.000000	0.0	8.001020	96.3	1.001020	
.0069	8.001035	47.6	0.000000	0.0	8.001035	96.2	1.001035	
.0070	8.001050	47.5	0.000000	0.0	8.001050	96.2	1.001050	
.0071	8.001065	47.5	0.000000	0.0	8.001065	96.1	1.001065	
.0072	8.001080	47.4	0.000000	0.0	8.001080	96.1	1.001080	
.0073	8.001095	47.4	0.000000	0.0	8.001095	96.0	1.001095	
.0074	8.001110	47.3	0.000000	0.0	8.001110	96.0	1.001110	
.0075	8.001125	47.3	0.000000	0.0	8.001125	95.9	1.001125	
.0076	8.001140	47.2	0.000000	0.0	8.001140	95.9	1.001140	
.0077	8.001155	47.2	0.000000	0.0	8.001155	95.8	1.001155	
.0078	8.001170	47.1	0.000000	0.0	8.001170	95.8	1.001170	
.0079	8.001185	47.1	0.000000	0.0	8.001185	95.7	1.001185	
.0080	8.001200	47.0	0.000000	0.0	8.001200	95.7	1.001200	
.0081	8.001215	47.0	0.000000	0.0	8.001215	95.6	1.001215	
.0082	8.001230	46.9	0.000000	0.0	8.001230	95.6	1.001230	
.0083	8.001245	46.9	0.000000	0.0	8.001245	95.5	1.001245	
.0084	8.001260	46.8	0.000000	0.0	8.001260	95.5	1.001260	
.0085	8.001275	46.8	0.000000	0.0	8.001275	95.4	1.001275	
.0086	8.001290	46.7	0.000000	0.0	8.001290	95.4	1.001290	
.0087	8.001305	46.7	0.000000	0.0	8.001305	95.3	1.001305	
.0088	8.001320	46.6	0.000000	0.0	8.001320	95.3	1.001320	
.0089	8.001335	46.6	0.000000	0.0	8.001335	95.2	1.001335	
.0090	8.001350	46.5	0.000000	0.0	8.001350	95.2	1.001350	
.0091	8.001365	46.5	0.000000	0.0	8.001365	95.1	1.001365	
.0092	8.001380	46.4	0.000000	0.0	8.001380	95.1	1.001380	
.0093	8.001395	46.4	0.000000	0.0	8.001395	95.0	1.001395	
.0094	8.001410	46.3	0.000000	0.0	8.001410	95.0	1.001410	
.0095	8.001425	46.3	0.000000	0.0	8.001425	94.9	1.001425	
.0096	8.001440	46.2	0.000000	0.0	8.001440	94.9	1.001440	
.0097	8.001455	46.2	0.000000	0.0	8.001455	94.8	1.001455	
.0098	8.001470	46.1	0.000000	0.0	8.001470	94.8	1.001470	
.0099	8.001485	46.1	0.000000	0.0	8.001485	94.7	1.001485	
.0100	8.001500	46.0	0.000000	0.0	8.001500	94.7	1.001500	
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$	$= F_4'$

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
0.0000	8.05483	48.4	0.00170	0.4	8.05307	48.0	1.04693
.0001	.05331	48.3	.00170		.05335	47.9	.04645
.0002	.05580	48.1	.00170		.05403	47.9	.04597
.0003	.05828	48.0	.00177		.05451	47.8	.04549
.0004	.06076	48.0	.00177		.05499	47.8	.04501
0.0005	8.05924	48.1	0.00178	0.4	8.05347	47.7	1.04453
.0006	.05772	48.1	.00178		.05394	47.7	.04405
.0007	.05520	48.0	.00178		.05442	47.6	.04358
.0008	.05268	48.0	.00179		.05489	47.6	.04311
.0009	.05016	47.9	.00179		.05537	47.5	.04263
0.0010	8.05964	47.9	0.00180	0.4	8.05283	47.5	1.04216
.0011	.05012	47.8	.00180		.05332	47.4	.04168
.0012	.05060	47.8	.00180		.05379	47.4	.04121
.0013	.05107	47.7	.00181		.05427	47.3	.04073
.0014	.05155	47.6	.00181		.05474	47.3	.04026
0.0015	8.05303	47.6	0.00182	0.4	8.05601	47.2	1.03979
.0016	.05250	47.5	.00182		.05648	47.1	.03932
.0017	.05298	47.5	.00182		.05695	47.1	.03885
.0018	.05345	47.4	.00183		.05743	47.0	.03837
.0019	.05393	47.4	.00183		.05790	47.0	.03790
0.0020	8.05440	47.3	0.00184	0.4	8.05626	46.9	1.03744
.0021	.05487	47.3	.00184		.05673	46.9	.03697
.0022	.05535	47.2	.00184		.05720	46.8	.03650
.0023	.05582	47.2	.00185		.05767	46.8	.03603
.0024	.05630	47.1	.00185		.05814	46.7	.03556
0.0025	8.05676	47.1	0.00185	0.4	8.05540	46.7	1.03509
.0026	.05723	47.0	.00186		.05587	46.6	.03463
.0027	.05770	47.0	.00186		.05634	46.6	.03416
.0028	.05817	46.9	.00187		.05681	46.5	.03370
.0029	.05864	46.9	.00187		.05727	46.5	.03323
0.0030	8.05911	46.8	0.00188	0.4	8.05723	46.4	1.03277
.0031	.05958	46.8	.00188		.05770	46.4	.03230
.0032	.06004	46.7	.00188		.05816	46.3	.03184
.0033	.06051	46.7	.00189		.05862	46.3	.03138
.0034	.06098	46.6	.00189		.05909	46.2	.03091
0.0035	8.05744	46.6	0.00190	0.4	8.05955	46.2	1.03045
.0036	.06191	46.5	.00190		.05901	46.1	.03000
.0037	.06237	46.5	.00190		.05947	46.1	.02953
.0038	.06284	46.4	.00191		.05993	46.0	.02907
.0039	.06330	46.4	.00191		.06039	46.0	.02861
0.0040	8.05777	46.3	0.00192	0.4	8.05718	45.9	1.02815
.0041	.06423	46.3	.00192		.06031	45.9	.02769
.0042	.06469	46.2	.00192		.06077	45.8	.02723
.0043	.06516	46.2	.00193		.06123	45.8	.02677
.0044	.06562	46.1	.00193		.06168	45.7	.02632
0.0045	8.05768	46.1	0.00194	0.4	8.05714	45.7	1.02786
.0046	.06609	46.0	.00194		.06214	45.6	.02640
.0047	.06650	46.0	.00194		.06259	45.6	.02595
.0048	.06695	45.9	.00195		.06305	45.5	.02550
.0049	.06740	45.9	.00195		.06351	45.5	.02505
0.0050	8.05838	45.8	0.00196	0.4	8.05704	45.4	1.02558
u	log tan u	= F'	log sec u	= F'	log sin u	= F'	log cos u

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\omega F'$	$\log \cosh u$	$\omega F'$	$\log \tanh u$	$\omega F'$	$\log \coth u$
0.0000	8.126148	45.0	0.00000	0.4	8.070142	45.4	1.044358
0.0010	8.126153	45.1	0.00000		8.070147	45.4	1.044363
0.0020	8.126158	45.2	0.00000		8.070152	45.4	1.044368
0.0030	8.126163	45.2	0.00000		8.070157	45.4	1.044373
0.0040	8.126168	45.2	0.00000		8.070162	45.4	1.044378
0.0050	8.126173	45.3	0.00000		8.070167	45.4	1.044383
0.0060	8.126178	45.3	0.00000		8.070172	45.4	1.044388
0.0070	8.126183	45.3	0.00000		8.070177	45.4	1.044393
0.0080	8.126188	45.3	0.00000		8.070182	45.4	1.044398
0.0090	8.126193	45.4	0.00000		8.070187	45.4	1.044403
0.0100	8.126198	45.4	0.00000		8.070192	45.4	1.044408
0.0110	8.126203	45.4	0.00000		8.070197	45.4	1.044413
0.0120	8.126208	45.4	0.00000		8.070202	45.4	1.044418
0.0130	8.126213	45.4	0.00000		8.070207	45.4	1.044423
0.0140	8.126218	45.4	0.00000		8.070212	45.4	1.044428
0.0150	8.126223	45.4	0.00000		8.070217	45.4	1.044433
0.0160	8.126228	45.4	0.00000		8.070222	45.4	1.044438
0.0170	8.126233	45.4	0.00000		8.070227	45.4	1.044443
0.0180	8.126238	45.4	0.00000		8.070232	45.4	1.044448
0.0190	8.126243	45.4	0.00000		8.070237	45.4	1.044453
0.0200	8.126248	45.4	0.00000		8.070242	45.4	1.044458
0.0210	8.126253	45.4	0.00000		8.070247	45.4	1.044463
0.0220	8.126258	45.4	0.00000		8.070252	45.4	1.044468
0.0230	8.126263	45.4	0.00000		8.070257	45.4	1.044473
0.0240	8.126268	45.4	0.00000		8.070262	45.4	1.044478
0.0250	8.126273	45.4	0.00000		8.070267	45.4	1.044483
0.0260	8.126278	45.4	0.00000		8.070272	45.4	1.044488
0.0270	8.126283	45.4	0.00000		8.070277	45.4	1.044493
0.0280	8.126288	45.4	0.00000		8.070282	45.4	1.044498
0.0290	8.126293	45.4	0.00000		8.070287	45.4	1.044503
0.0300	8.126298	45.4	0.00000		8.070292	45.4	1.044508
0.0310	8.126303	45.4	0.00000		8.070297	45.4	1.044513
0.0320	8.126308	45.4	0.00000		8.070302	45.4	1.044518
0.0330	8.126313	45.4	0.00000		8.070307	45.4	1.044523
0.0340	8.126318	45.4	0.00000		8.070312	45.4	1.044528
0.0350	8.126323	45.4	0.00000		8.070317	45.4	1.044533
0.0360	8.126328	45.4	0.00000		8.070322	45.4	1.044538
0.0370	8.126333	45.4	0.00000		8.070327	45.4	1.044543
0.0380	8.126338	45.4	0.00000		8.070332	45.4	1.044548
0.0390	8.126343	45.4	0.00000		8.070337	45.4	1.044553
0.0400	8.126348	45.4	0.00000		8.070342	45.4	1.044558
0.0410	8.126353	45.4	0.00000		8.070347	45.4	1.044563
0.0420	8.126358	45.4	0.00000		8.070352	45.4	1.044568
0.0430	8.126363	45.4	0.00000		8.070357	45.4	1.044573
0.0440	8.126368	45.4	0.00000		8.070362	45.4	1.044578
0.0450	8.126373	45.4	0.00000		8.070367	45.4	1.044583
0.0460	8.126378	45.4	0.00000		8.070372	45.4	1.044588
0.0470	8.126383	45.4	0.00000		8.070377	45.4	1.044593
0.0480	8.126388	45.4	0.00000		8.070382	45.4	1.044598
0.0490	8.126393	45.4	0.00000		8.070387	45.4	1.044603
0.0500	8.126398	45.4	0.00000		8.070392	45.4	1.044608
0.0510	8.126403	45.4	0.00000		8.070397	45.4	1.044613
0.0520	8.126408	45.4	0.00000		8.070402	45.4	1.044618
0.0530	8.126413	45.4	0.00000		8.070407	45.4	1.044623
0.0540	8.126418	45.4	0.00000		8.070412	45.4	1.044628
0.0550	8.126423	45.4	0.00000		8.070417	45.4	1.044633
0.0560	8.126428	45.4	0.00000		8.070422	45.4	1.044638
0.0570	8.126433	45.4	0.00000		8.070427	45.4	1.044643
0.0580	8.126438	45.4	0.00000		8.070432	45.4	1.044648
0.0590	8.126443	45.4	0.00000		8.070437	45.4	1.044653
0.0600	8.126448	45.4	0.00000		8.070442	45.4	1.044658
0.0610	8.126453	45.4	0.00000		8.070447	45.4	1.044663
0.0620	8.126458	45.4	0.00000		8.070452	45.4	1.044668
0.0630	8.126463	45.4	0.00000		8.070457	45.4	1.044673
0.0640	8.126468	45.4	0.00000		8.070462	45.4	1.044678
0.0650	8.126473	45.4	0.00000		8.070467	45.4	1.044683
0.0660	8.126478	45.4	0.00000		8.070472	45.4	1.044688
0.0670	8.126483	45.4	0.00000		8.070477	45.4	1.044693
0.0680	8.126488	45.4	0.00000		8.070482	45.4	1.044698
0.0690	8.126493	45.4	0.00000		8.070487	45.4	1.044703
0.0700	8.126498	45.4	0.00000		8.070492	45.4	1.044708
0.0710	8.126503	45.4	0.00000		8.070497	45.4	1.044713
0.0720	8.126508	45.4	0.00000		8.070502	45.4	1.044718
0.0730	8.126513	45.4	0.00000		8.070507	45.4	1.044723
0.0740	8.126518	45.4	0.00000		8.070512	45.4	1.044728
0.0750	8.126523	45.4	0.00000		8.070517	45.4	1.044733
0.0760	8.126528	45.4	0.00000		8.070522	45.4	1.044738
0.0770	8.126533	45.4	0.00000		8.070527	45.4	1.044743
0.0780	8.126538	45.4	0.00000		8.070532	45.4	1.044748
0.0790	8.126543	45.4	0.00000		8.070537	45.4	1.044753
0.0800	8.126548	45.4	0.00000		8.070542	45.4	1.044758
0.0810	8.126553	45.4	0.00000		8.070547	45.4	1.044763
0.0820	8.126558	45.4	0.00000		8.070552	45.4	1.044768
0.0830	8.126563	45.4	0.00000		8.070557	45.4	1.044773
0.0840	8.126568	45.4	0.00000		8.070562	45.4	1.044778
0.0850	8.126573	45.4	0.00000		8.070567	45.4	1.044783
0.0860	8.126578	45.4	0.00000		8.070572	45.4	1.044788
0.0870	8.126583	45.4	0.00000		8.070577	45.4	1.044793
0.0880	8.126588	45.4	0.00000		8.070582	45.4	1.044798
0.0890	8.126593	45.4	0.00000		8.070587	45.4	1.044803
0.0900	8.126598	45.4	0.00000		8.070592	45.4	1.044808
0.0910	8.126603	45.4	0.00000		8.070597	45.4	1.044813
0.0920	8.126608	45.4	0.00000		8.070602	45.4	1.044818
0.0930	8.126613	45.4	0.00000		8.070607	45.4	1.044823
0.0940	8.126618	45.4	0.00000		8.070612	45.4	1.044828
0.0950	8.126623	45.4	0.00000		8.070617	45.4	1.044833
0.0960	8.126628	45.4	0.00000		8.070622	45.4	1.044838
0.0970	8.126633	45.4	0.00000		8.070627	45.4	1.044843
0.0980	8.126638	45.4	0.00000		8.070632	45.4	1.044848
0.0990	8.126643	45.4	0.00000		8.070637	45.4	1.044853
0.1000	8.126648	45.4	0.00000		8.070642	45.4	1.044858
0.1000	9.000072	45.6	0.00000	0.1	8.028996	45.1	1.000044
u	$\log \tanh u$	$\omega F'$	$\log \coth u$	$\omega F'$	$\log \sinh u$	$\omega F'$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$
0.100	0.00072	435.7	0.00217	4.3	8.99896	4.113	1.00114
.101	.00085	431.5	.00221	4.4	9.00088	4.271	0.99912
.102	.00098	427.3	.00226	4.4	.00710	4.228	.99710
.103	.00110	423.1	.00230	4.5	.01131	4.187	.99508
.104	.00122	419.1	.00234	4.5	.01547	4.146	.99306
0.105	0.00139	415.1	0.00239	4.5	0.01960	4.106	0.99104
.105	.00151	411.2	.00243	4.6	.02368	4.065	.98902
.107	.002021	407.4	.00248	4.6	.02771	4.025	.98700
.108	.03147	403.7	.00253	4.7	.03174	3.984	.98500
.109	.03849	400.0	.00257	4.7	.03571	3.943	.98300
0.110	0.04227	396.4	0.00262	4.8	0.03965	3.902	0.98105
.111	.04621	392.9	.00267	4.8	.04354	3.861	.97910
.112	.05013	389.4	.00272	4.8	.04741	3.820	.97715
.113	.05400	385.9	.00277	4.9	.05124	3.779	.97520
.114	.05785	382.6	.00282	4.9	.05503	3.737	.97325
0.115	0.06165	379.3	0.00287	5.0	0.05879	3.696	0.97130
.116	.06543	375.1	.00292	5.0	.06252	3.654	.96935
.117	.06918	371.0	.00297	5.1	.06621	3.613	.96740
.118	.07289	366.8	.00302	5.1	.06987	3.571	.96545
.119	.07657	362.7	.00307	5.1	.07350	3.530	.96350
0.120	0.08022	358.6	0.00312	5.2	0.07710	3.488	0.96155
.121	.08384	354.7	.00317	5.2	.08067	3.447	.95960
.122	.08744	350.7	.00322	5.3	.08421	3.405	.95765
.123	.09100	346.9	.00328	5.3	.08772	3.364	.95570
.124	.09453	343.0	.00333	5.4	.09120	3.322	.95375
0.125	0.09804	339.2	0.00338	5.4	0.09466	3.281	0.95180
.125	.10152	335.4	.00344	5.4	.09808	3.240	.94985
.127	.10497	331.6	.00349	5.5	.10148	3.198	.94790
.128	.10840	327.8	.00355	5.5	.10485	3.157	.94595
.129	.11179	324.1	.00360	5.6	.10819	3.116	.94400
0.130	0.11517	320.4	0.00366	5.6	0.11151	3.075	0.94205
.131	.11851	316.7	.00372	5.7	.11480	3.034	.94010
.132	.12183	313.0	.00377	5.7	.11806	3.093	.93815
.133	.12513	309.3	.00383	5.7	.12130	3.052	.93620
.134	.12840	305.6	.00389	5.8	.12454	3.011	.93425
0.135	0.13165	302.0	0.00395	5.8	0.12777	2.970	0.93230
.135	.13488	298.3	.00400	5.9	.13097	2.929	.93035
.137	.13808	294.6	.00405	5.9	.13414	2.888	.92840
.138	.14125	291.0	.00412	6.0	.13733	2.847	.92645
.139	.14441	287.3	.00418	6.0	.14051	2.806	.92450
0.140	0.14755	283.7	0.00424	6.0	0.14369	2.765	0.92255
.141	.15066	280.0	.00430	6.1	.14683	2.724	.92060
.142	.15373	276.4	.00436	6.1	.14998	2.683	.91865
.143	.15682	272.7	.00443	6.2	.15313	2.642	.91670
.144	.15988	269.1	.00449	6.2	.15628	2.601	.91475
0.145	0.16289	265.5	0.00455	6.3	0.15941	2.560	0.91280
.145	.16588	261.9	.00461	6.3	.16254	2.519	.91085
.147	.16888	258.3	.00468	6.3	.16568	2.478	.90890
.148	.17185	254.7	.00474	6.4	.16881	2.437	.90695
.149	.17479	251.1	.00480	6.4	.17194	2.396	.90500
0.150	0.17772	247.6	0.00487	6.5	0.17505	2.355	0.90305
u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.150	0.17773	294.2	0.00387	0.5	9.17285	285.2	0.82715
.151	.17845	294.8	.00393	.5	.17359	285.3	.82311
.152	.17917	295.0	.00399	.6	.17432	285.4	.81918
.153	.17989	295.1	.00405	.6	.17505	285.5	.81524
.154	.18061	295.2	.00411	.6	.17578	285.6	.81130
0.155	0.18133	295.4	0.00420	6.7	9.18087	275.8	0.80737
.156	.18205	295.6	.00426	6.7	.18162	275.9	.80343
.157	.18277	295.7	.00432	6.8	.18235	275.9	.80006
.158	.18349	295.7	.00439	6.8	.18308	276.0	.79669
.159	.18421	295.8	.00447	6.8	.18380	276.0	.79322
0.160	0.18493	295.7	0.00454	6.9	9.18911	266.2	0.78926
.161	.18565	295.8	.00460	6.9	.18986	266.3	.78530
.162	.18637	295.8	.00467	7.0	.19059	266.3	.78134
.163	.18709	295.8	.00474	7.0	.19132	266.4	.77738
.164	.18781	295.9	.00481	7.1	.19205	266.4	.77342
0.165	0.18853	295.6	0.00489	7.1	9.21357	256.5	0.76946
.166	.18925	295.6	.00496	7.1	.21431	256.6	.76550
.167	.18997	295.5	.00503	7.2	.21504	256.6	.76154
.168	.19069	295.5	.00510	7.2	.21577	256.7	.75758
.169	.19141	295.4	.00517	7.3	.21650	256.7	.75362
0.170	0.19213	295.0	0.00525	7.3	9.22620	246.6	0.74966
.171	.19285	295.1	.00532	7.3	.22693	246.7	.74570
.172	.19357	295.0	.00539	7.3	.22766	246.7	.74174
.173	.19429	295.1	.00547	7.4	.22839	246.8	.73778
.174	.19501	295.1	.00554	7.4	.22912	246.8	.73382
0.175	0.19573	294.7	0.00562	7.5	9.23881	236.5	0.72986
.176	.19645	294.8	.00569	7.5	.23954	236.6	.72590
.177	.19717	294.8	.00577	7.5	.24027	236.6	.72194
.178	.19789	294.8	.00584	7.6	.24100	236.7	.71798
.179	.19861	294.7	.00592	7.7	.24173	236.7	.71402
0.180	0.19933	294.3	0.00599	7.7	9.24932	226.4	0.71006
.181	.20005	294.3	.00606	7.8	.25005	226.5	.70610
.182	.20077	294.3	.00613	7.8	.25078	226.5	.70214
.183	.20149	294.3	.00621	7.9	.25151	226.6	.69818
.184	.20221	294.2	.00628	7.9	.25224	226.6	.69422
0.185	0.20293	293.7	0.00636	7.9	9.26226	216.3	0.69026
.186	.20365	293.8	.00643	8.0	.26299	216.4	.68630
.187	.20437	293.8	.00650	8.0	.26372	216.4	.68234
.188	.20509	293.7	.00658	8.1	.26445	216.5	.67838
.189	.20581	293.8	.00665	8.1	.26518	216.5	.67442
0.190	0.20653	293.3	0.00673	8.2	9.27337	206.2	0.67046
.191	.20725	293.4	.00680	8.2	.27410	206.3	.66650
.192	.20797	293.4	.00688	8.2	.27483	206.3	.66254
.193	.20869	293.4	.00695	8.3	.27556	206.4	.65858
.194	.20941	293.3	.00703	8.3	.27629	206.4	.65462
0.195	0.21013	292.8	0.00711	8.4	9.28358	196.1	0.65066
.196	.21085	292.9	.00718	8.4	.28431	196.2	.64670
.197	.21157	292.9	.00726	8.4	.28504	196.2	.64274
.198	.21229	292.9	.00733	8.5	.28577	196.3	.63878
.199	.21301	292.8	.00741	8.5	.28650	196.3	.63482
0.200	0.21373	292.3	0.00749	8.6	9.29539	186.0	0.63086
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$
0.200	9.30392	220.0	0.00893	8.0	9.30584	211.5	0.004173
.201	.30402	219.9	.00894	8.0	.30594	210.4	.004183
.202	.30412	219.8	.00895	8.0	.30604	209.3	.004193
.203	.30422	219.7	.00896	8.0	.30614	208.2	.004203
.204	.30432	219.6	.00897	8.0	.30624	207.1	.004213
0.205	9.31470	214.8	0.00900	8.8	9.31673	202.0	0.004217
.206	.31480	214.8	.00901	8.8	.31683	200.9	.004227
.207	.31490	214.8	.00902	8.8	.31693	199.8	.004237
.208	.31500	214.8	.00903	8.8	.31703	198.7	.004247
.209	.31510	214.8	.00904	8.8	.31713	197.6	.004257
0.210	9.32541	209.8	0.00908	9.0	9.32748	192.5	0.004261
.211	.32551	209.8	.00909	9.0	.32758	191.4	.004271
.212	.32561	209.8	.00910	9.0	.32768	190.3	.004281
.213	.32571	209.8	.00911	9.0	.32778	189.2	.004291
.214	.32581	209.8	.00912	9.0	.32788	188.1	.004301
0.215	9.33578	205.1	0.00916	9.2	9.33787	183.0	0.004305
.216	.33588	205.1	.00917	9.2	.33797	181.9	.004315
.217	.33598	205.1	.00918	9.2	.33807	180.8	.004325
.218	.33608	205.1	.00919	9.2	.33817	179.7	.004335
.219	.33618	205.1	.00920	9.2	.33827	178.6	.004345
0.220	9.34592	200.6	0.00924	9.4	9.34801	173.5	0.004349
.221	.34602	200.6	.00925	9.4	.34811	172.4	.004359
.222	.34612	200.6	.00926	9.4	.34821	171.3	.004369
.223	.34622	200.6	.00927	9.4	.34831	170.2	.004379
.224	.34632	200.6	.00928	9.4	.34841	169.1	.004389
0.225	9.35584	195.3	0.00930	9.6	9.35794	164.0	0.004393
.226	.35594	195.3	.00931	9.6	.35804	162.9	.004403
.227	.35604	195.3	.00932	9.6	.35814	161.8	.004413
.228	.35614	195.3	.00933	9.6	.35824	160.7	.004423
.229	.35624	195.3	.00934	9.6	.35834	159.6	.004433
0.230	9.36555	190.1	0.00936	9.8	9.36765	154.5	0.004437
.231	.36565	190.1	.00937	9.8	.36775	153.4	.004447
.232	.36575	190.1	.00938	9.8	.36785	152.3	.004457
.233	.36585	190.1	.00939	9.8	.36795	151.2	.004467
.234	.36595	190.1	.00940	9.8	.36805	150.1	.004477
0.235	9.37506	185.2	0.00942	10.0	9.37716	145.0	0.004481
.236	.37516	185.2	.00943	10.0	.37726	143.9	.004491
.237	.37526	185.2	.00944	10.0	.37736	142.8	.004501
.238	.37536	185.2	.00945	10.0	.37746	141.7	.004511
.239	.37546	185.2	.00946	10.0	.37756	140.6	.004521
0.240	9.38417	180.1	0.00948	10.2	9.38627	135.5	0.004525
.241	.38427	180.1	.00949	10.2	.38637	134.4	.004535
.242	.38437	180.1	.00950	10.2	.38647	133.3	.004545
.243	.38447	180.1	.00951	10.2	.38657	132.2	.004555
.244	.38457	180.1	.00952	10.2	.38667	131.1	.004565
0.245	9.39350	175.3	0.00954	10.4	9.39560	126.0	0.004569
.246	.39360	175.3	.00955	10.4	.39570	124.9	.004579
.247	.39370	175.3	.00956	10.4	.39580	123.8	.004589
.248	.39380	175.3	.00957	10.4	.39590	122.7	.004599
.249	.39390	175.3	.00958	10.4	.39600	121.6	.004609
0.250	9.40265	170.3	0.00960	10.6	9.40475	116.5	0.004613
u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	x/F'	$\log \cosh x$	x/F'	$\log \tanh x$	x/F'	$\log \coth x$
0.300	0.48362	1.191	0.11936	1.27	0.36426	1.391	0.53574
0.301	0.48370	1.190	0.11938	1.27	0.36427	1.390	0.53573
0.302	0.48379	1.189	0.11941	1.27	0.36428	1.389	0.53572
0.303	0.48387	1.188	0.11943	1.28	0.36429	1.388	0.53571
0.304	0.48395	1.187	0.11946	1.28	0.36430	1.387	0.53570
0.305	0.48403	1.186	0.11948	1.28	0.36431	1.386	0.53569
0.306	0.48411	1.185	0.11951	1.29	0.36432	1.385	0.53568
0.307	0.48419	1.184	0.11953	1.29	0.36433	1.384	0.53567
0.308	0.48427	1.183	0.11956	1.29	0.36434	1.383	0.53566
0.309	0.48435	1.182	0.11958	1.30	0.36435	1.382	0.53565
0.310	0.48443	1.181	0.11961	1.30	0.36436	1.381	0.53564
0.311	0.48451	1.180	0.11963	1.31	0.36437	1.380	0.53563
0.312	0.48459	1.179	0.11966	1.31	0.36438	1.379	0.53562
0.313	0.48467	1.178	0.11968	1.32	0.36439	1.378	0.53561
0.314	0.48475	1.177	0.11971	1.32	0.36440	1.377	0.53560
0.315	0.48483	1.176	0.11973	1.33	0.36441	1.376	0.53559
0.316	0.48491	1.175	0.11976	1.33	0.36442	1.375	0.53558
0.317	0.48499	1.174	0.11978	1.34	0.36443	1.374	0.53557
0.318	0.48507	1.173	0.11981	1.34	0.36444	1.373	0.53556
0.319	0.48515	1.172	0.11983	1.35	0.36445	1.372	0.53555
0.320	0.48523	1.171	0.11986	1.35	0.36446	1.371	0.53554
0.321	0.48531	1.170	0.11988	1.36	0.36447	1.370	0.53553
0.322	0.48539	1.169	0.11991	1.36	0.36448	1.369	0.53552
0.323	0.48547	1.168	0.11993	1.37	0.36449	1.368	0.53551
0.324	0.48555	1.167	0.11996	1.37	0.36450	1.367	0.53550
0.325	0.48563	1.166	0.11998	1.38	0.36451	1.366	0.53549
0.326	0.48571	1.165	0.12001	1.38	0.36452	1.365	0.53548
0.327	0.48579	1.164	0.12003	1.39	0.36453	1.364	0.53547
0.328	0.48587	1.163	0.12006	1.39	0.36454	1.363	0.53546
0.329	0.48595	1.162	0.12008	1.40	0.36455	1.362	0.53545
0.330	0.48603	1.161	0.12011	1.40	0.36456	1.361	0.53544
0.331	0.48611	1.160	0.12013	1.41	0.36457	1.360	0.53543
0.332	0.48619	1.159	0.12016	1.41	0.36458	1.359	0.53542
0.333	0.48627	1.158	0.12018	1.42	0.36459	1.358	0.53541
0.334	0.48635	1.157	0.12021	1.42	0.36460	1.357	0.53540
0.335	0.48643	1.156	0.12023	1.43	0.36461	1.356	0.53539
0.336	0.48651	1.155	0.12026	1.43	0.36462	1.355	0.53538
0.337	0.48659	1.154	0.12028	1.44	0.36463	1.354	0.53537
0.338	0.48667	1.153	0.12031	1.44	0.36464	1.353	0.53536
0.339	0.48675	1.152	0.12033	1.45	0.36465	1.352	0.53535
0.340	0.48683	1.151	0.12036	1.45	0.36466	1.351	0.53534
0.341	0.48691	1.150	0.12038	1.46	0.36467	1.350	0.53533
0.342	0.48699	1.149	0.12041	1.46	0.36468	1.349	0.53532
0.343	0.48707	1.148	0.12043	1.47	0.36469	1.348	0.53531
0.344	0.48715	1.147	0.12046	1.47	0.36470	1.347	0.53530
0.345	0.48723	1.146	0.12048	1.48	0.36471	1.346	0.53529
0.346	0.48731	1.145	0.12051	1.48	0.36472	1.345	0.53528
0.347	0.48739	1.144	0.12053	1.49	0.36473	1.344	0.53527
0.348	0.48747	1.143	0.12056	1.49	0.36474	1.343	0.53526
0.349	0.48755	1.142	0.12058	1.50	0.36475	1.342	0.53525
0.350	0.48763	1.141	0.12061	1.50	0.36476	1.341	0.53524
0.351	0.48771	1.140	0.12063	1.51	0.36477	1.340	0.53523
0.352	0.48779	1.139	0.12066	1.51	0.36478	1.339	0.53522
0.353	0.48787	1.138	0.12068	1.52	0.36479	1.338	0.53521
0.354	0.48795	1.137	0.12071	1.52	0.36480	1.337	0.53520
0.355	0.48803	1.136	0.12073	1.53	0.36481	1.336	0.53519
0.356	0.48811	1.135	0.12076	1.53	0.36482	1.335	0.53518
0.357	0.48819	1.134	0.12078	1.54	0.36483	1.334	0.53517
0.358	0.48827	1.133	0.12081	1.54	0.36484	1.333	0.53516
0.359	0.48835	1.132	0.12083	1.55	0.36485	1.332	0.53515
0.360	0.48843	1.131	0.12086	1.55	0.36486	1.331	0.53514
0.361	0.48851	1.130	0.12088	1.56	0.36487	1.330	0.53513
0.362	0.48859	1.129	0.12091	1.56	0.36488	1.329	0.53512
0.363	0.48867	1.128	0.12093	1.57	0.36489	1.328	0.53511
0.364	0.48875	1.127	0.12096	1.57	0.36490	1.327	0.53510
0.365	0.48883	1.126	0.12098	1.58	0.36491	1.326	0.53509
0.366	0.48891	1.125	0.12101	1.58	0.36492	1.325	0.53508
0.367	0.48899	1.124	0.12103	1.59	0.36493	1.324	0.53507
0.368	0.48907	1.123	0.12106	1.59	0.36494	1.323	0.53506
0.369	0.48915	1.122	0.12108	1.60	0.36495	1.322	0.53505
0.370	0.48923	1.121	0.12111	1.60	0.36496	1.321	0.53504
0.371	0.48931	1.120	0.12113	1.61	0.36497	1.320	0.53503
0.372	0.48939	1.119	0.12116	1.61	0.36498	1.319	0.53502
0.373	0.48947	1.118	0.12118	1.62	0.36499	1.318	0.53501
0.374	0.48955	1.117	0.12121	1.62	0.36500	1.317	0.53500
0.375	0.48963	1.116	0.12123	1.63	0.36501	1.316	0.53499
0.376	0.48971	1.115	0.12126	1.63	0.36502	1.315	0.53498
0.377	0.48979	1.114	0.12128	1.64	0.36503	1.314	0.53497
0.378	0.48987	1.113	0.12131	1.64	0.36504	1.313	0.53496
0.379	0.48995	1.112	0.12133	1.65	0.36505	1.312	0.53495
0.380	0.49003	1.111	0.12136	1.65	0.36506	1.311	0.53494
0.381	0.49011	1.110	0.12138	1.66	0.36507	1.310	0.53493
0.382	0.49019	1.109	0.12141	1.66	0.36508	1.309	0.53492
0.383	0.49027	1.108	0.12143	1.67	0.36509	1.308	0.53491
0.384	0.49035	1.107	0.12146	1.67	0.36510	1.307	0.53490
0.385	0.49043	1.106	0.12148	1.68	0.36511	1.306	0.53489
0.386	0.49051	1.105	0.12151	1.68	0.36512	1.305	0.53488
0.387	0.49059	1.104	0.12153	1.69	0.36513	1.304	0.53487
0.388	0.49067	1.103	0.12156	1.69	0.36514	1.303	0.53486
0.389	0.49075	1.102	0.12158	1.70	0.36515	1.302	0.53485
0.390	0.49083	1.101	0.12161	1.70	0.36516	1.301	0.53484
0.391	0.49091	1.100	0.12163	1.71	0.36517	1.300	0.53483
0.392	0.49099	1.099	0.12166	1.71	0.36518	1.299	0.53482
0.393	0.49107	1.098	0.12168	1.72	0.36519	1.298	0.53481
0.394	0.49115	1.097	0.12171	1.72	0.36520	1.297	0.53480
0.395	0.49123	1.096	0.12173	1.73	0.36521	1.296	0.53479
0.396	0.49131	1.095	0.12176	1.73	0.36522	1.295	0.53478
0.397	0.49139	1.094	0.12178	1.74	0.36523	1.294	0.53477
0.398	0.49147	1.093	0.12181	1.74	0.36524	1.293	0.53476
0.399	0.49155	1.092	0.12183	1.75	0.36525	1.292	0.53475
0.400	0.49163	1.091	0.12186	1.75	0.36526	1.291	0.53474

BRIDGES TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.480	9.55380	1.841	0.63047	1.66	9.55382	11.45	0.47108
.481	.55410	1.842	.63062	1.66	.55410	11.46	.47203
.482	.55440	1.843	.63077	1.67	.55440	11.47	.47298
.483	.55470	1.844	.63091	1.67	.55470	11.48	.47393
.484	.55501	1.845	.63106	1.68	.55501	11.49	.47488
0.485	9.55931	1.846	0.63121	1.68	9.55930	11.50	0.47583
.486	.55960	1.847	.63136	1.68	.55960	11.51	.47678
.487	.55990	1.848	.63151	1.69	.55990	11.52	.47773
.488	.56020	1.849	.63166	1.69	.56020	11.53	.47868
.489	.56050	1.850	.63181	1.69	.56050	11.54	.47963
0.490	9.56070	1.851	0.63196	1.70	9.56069	11.55	0.48058
.491	.56100	1.852	.63211	1.70	.56100	11.56	.48153
.492	.56130	1.853	.63226	1.71	.56130	11.57	.48248
.493	.56160	1.854	.63241	1.71	.56160	11.58	.48343
.494	.56190	1.855	.63256	1.72	.56190	11.59	.48438
0.495	9.56210	1.856	0.63271	1.72	9.56209	11.60	0.48533
.496	.56240	1.857	.63286	1.72	.56240	11.61	.48628
.497	.56270	1.858	.63301	1.73	.56270	11.62	.48723
.498	.56300	1.859	.63316	1.73	.56300	11.63	.48818
.499	.56330	1.860	.63331	1.74	.56330	11.64	.48913
0.500	9.56350	1.861	0.63346	1.74	9.56349	11.65	0.49008
.501	.56380	1.862	.63361	1.74	.56380	11.66	.49103
.502	.56410	1.863	.63376	1.75	.56410	11.67	.49198
.503	.56440	1.864	.63391	1.75	.56440	11.68	.49293
.504	.56470	1.865	.63406	1.76	.56470	11.69	.49388
0.505	9.56490	1.866	0.63421	1.76	9.56489	11.70	0.49483
.506	.56520	1.867	.63436	1.76	.56520	11.71	.49578
.507	.56550	1.868	.63451	1.77	.56550	11.72	.49673
.508	.56580	1.869	.63466	1.77	.56580	11.73	.49768
.509	.56610	1.870	.63481	1.78	.56610	11.74	.49863
0.510	9.56630	1.871	0.63496	1.78	9.56629	11.75	0.49958
.511	.56660	1.872	.63511	1.78	.56660	11.76	.50053
.512	.56690	1.873	.63526	1.79	.56690	11.77	.50148
.513	.56720	1.874	.63541	1.79	.56720	11.78	.50243
.514	.56750	1.875	.63556	1.80	.56750	11.79	.50338
0.515	9.56770	1.876	0.63571	1.80	9.56769	11.80	0.50433
.516	.56800	1.877	.63586	1.80	.56800	11.81	.50528
.517	.56830	1.878	.63601	1.81	.56830	11.82	.50623
.518	.56860	1.879	.63616	1.81	.56860	11.83	.50718
.519	.56890	1.880	.63631	1.82	.56890	11.84	.50813
0.520	9.56910	1.881	0.63646	1.82	9.56909	11.85	0.50908
.521	.56940	1.882	.63661	1.82	.56940	11.86	.51003
.522	.56970	1.883	.63676	1.83	.56970	11.87	.51098
.523	.57000	1.884	.63691	1.83	.57000	11.88	.51193
.524	.57030	1.885	.63706	1.84	.57030	11.89	.51288
0.525	9.57050	1.886	0.63721	1.84	9.57049	11.90	0.51383
.526	.57080	1.887	.63736	1.84	.57080	11.91	.51478
.527	.57110	1.888	.63751	1.85	.57110	11.92	.51573
.528	.57140	1.889	.63766	1.85	.57140	11.93	.51668
.529	.57170	1.890	.63781	1.86	.57170	11.94	.51763
0.530	9.57190	1.891	0.63796	1.86	9.57189	11.95	0.51858
.531	.57220	1.892	.63811	1.86	.57220	11.96	.51953
.532	.57250	1.893	.63826	1.87	.57250	11.97	.52048
.533	.57280	1.894	.63841	1.87	.57280	11.98	.52143
.534	.57310	1.895	.63856	1.88	.57310	11.99	.52238
0.535	9.57330	1.896	0.63871	1.88	9.57329	12.00	0.52333
.536	.57360	1.897	.63886	1.88	.57360	12.01	.52428
.537	.57390	1.898	.63901	1.89	.57390	12.02	.52523
.538	.57420	1.899	.63916	1.89	.57420	12.03	.52618
.539	.57450	1.900	.63931	1.90	.57450	12.04	.52713
0.540	9.57470	1.901	0.63946	1.90	9.57469	12.05	0.52808
.541	.57480	1.902	.63961	1.90	.57480	12.06	.52903
.542	.57510	1.903	.63976	1.91	.57510	12.07	.53008
.543	.57540	1.904	.63991	1.91	.57540	12.08	.53103
.544	.57570	1.905	.64006	1.92	.57570	12.09	.53208
0.545	9.57590	1.906	0.64021	1.92	9.57589	12.10	0.53303
.546	.57620	1.907	.64036	1.92	.57620	12.11	.53408
.547	.57650	1.908	.64051	1.93	.57650	12.12	.53503
.548	.57680	1.909	.64066	1.93	.57680	12.13	.53608
.549	.57710	1.910	.64081	1.94	.57710	12.14	.53703
0.550	9.57730	1.911	0.64096	1.94	9.57729	12.15	0.53808
.551	.57760	1.912	.64111	1.94	.57760	12.16	.53903
.552	.57790	1.913	.64126	1.95	.57790	12.17	.54008
.553	.57820	1.914	.64141	1.95	.57820	12.18	.54103
.554	.57850	1.915	.64156	1.96	.57850	12.19	.54208
0.555	9.57870	1.916	0.64171	1.96	9.57869	12.20	0.54303
.556	.57900	1.917	.64186	1.96	.57900	12.21	.54408
.557	.57930	1.918	.64201	1.97	.57930	12.22	.54503
.558	.57960	1.919	.64216	1.97	.57960	12.23	.54608
.559	.57990	1.920	.64231	1.98	.57990	12.24	.54703
0.560	9.58010	1.921	0.64246	1.98	9.58009	12.25	0.54808
.561	.58040	1.922	.64261	1.98	.58040	12.26	.54903
.562	.58070	1.923	.64276	1.99	.58070	12.27	.55008
.563	.58100	1.924	.64291	1.99	.58100	12.28	.55103
.564	.58130	1.925	.64306	1.99	.58130	12.29	.55208
0.565	9.58150	1.926	0.64321	1.99	9.58149	12.30	0.55303
.566	.58180	1.927	.64336	2.00	.58180	12.31	.55408
.567	.58210	1.928	.64351	2.00	.58210	12.32	.55503
.568	.58240	1.929	.64366	2.01	.58240	12.33	.55608
.569	.58270	1.930	.64381	2.01	.58270	12.34	.55703
0.570	9.58290	1.931	0.64396	2.01	9.58289	12.35	0.55808
.571	.58320	1.932	.64411	2.02	.58320	12.36	.55903
.572	.58350	1.933	.64426	2.02	.58350	12.37	.56008
.573	.58380	1.934	.64441	2.03	.58380	12.38	.56103
.574	.58410	1.935	.64456	2.03	.58410	12.39	.56208
0.575	9.58430	1.936	0.64471	2.03	9.58429	12.40	0.56303
.576	.58460	1.937	.64486	2.04	.58460	12.41	.56408
.577	.58490	1.938	.64501	2.04	.58490	12.42	.56503
.578	.58520	1.939	.64516	2.05	.58520	12.43	.56608
.579	.58550	1.940	.64531	2.05	.58550	12.44	.56703
0.580	9.58570	1.941	0.64546	2.05	9.58569	12.45	0.56808
.581	.58600	1.942	.64561	2.06	.58600	12.46	.56903
.582	.58630	1.943	.64576	2.06	.58630	12.47	.57008
.583	.58660	1.944	.64591	2.07	.58660	12.48	.57103
.584	.58690	1.945	.64606	2.07	.58690	12.49	.57208
0.585	9.58710	1.946	0.64621	2.07	9.58709	12.50	0.57303
.586	.58740	1.947	.64636	2.08	.58740	12.51	.57408
.587	.58770	1.948	.64651	2.08	.58770	12.52	.57503
.588	.58800	1.949	.64666	2.09	.58800	12.53	.57608
.589	.58830	1.950	.64681	2.09	.58830	12.54	.57703
0.590	9.58850	1.951	0.64696	2.09	9.58849	12.55	0.57808
.591	.58920	1.952	.64711	2.10	.58920	12.56	.57903
.592	.58950	1.953	.64726	2.10	.58950	12.57	.58008
.593	.58980	1.954	.64741	2.11	.58980	12.58	.58103
.594	.59010	1.955	.64756	2.11	.59010	12.59	.58208
0.595	9.59030	1.956	0.64771	2.11	9.59029	12.60	0.58303
.596	.59060	1.957	.64786	2.12	.59060	12.61	.58408
.597	.59090	1.958	.64801	2.12	.59090	12.62	.58503
.598	.59120	1.959	.64816	2.13	.59120	12.63	.58608
.599	.59150	1.960	.64831	2.13	.59150	12.64	.58703
0.600	9.59170	1.961	0.64846	2.13	9.59169	12.65	0.58808
.601	.59200	1.962	.64861	2.14	.59200	12.66	.58903
.602	.59230	1.963	.64876	2.14	.59230	12.67	.59008
.603	.59260	1.964	.64891	2.15	.59260	12.68	.59103
.604	.59290	1.965	.64906	2.15	.59290	12.69	.59208
0.605	9.59310	1.966	0.64921	2.15	9.59309	12.70	0.59303
.606	.59340	1.967	.64936	2.16	.59340	12.71	.59408
.607	.59370	1.968	.64951	2.16	.59370	12.72	.59503
.608	.59400	1.969	.64966	2.17	.59400	12.73	.59608
.609	.59430	1.970	.64981	2.17	.59430	12.74	.59703
0.610	9.59450	1.971	0.64996	2.17	9.59449	12.75	0.59808
.611	.59480	1.972	.65011	2.18	.59480	12.76	.59903
.612	.59510	1.973	.65026	2.18	.59510	12.77	.60008
.613	.59540	1.974	.65041	2.19	.59540	12.78	.60103
.614	.59570	1.975	.65056	2.19	.59570	12.79	.60208
0.615	9.59590	1.976	0.65071	2.19	9.59589	12.80	0.60303
.616	.59620	1.977	.65086	2.20	.59620	12.81	.60408
.617	.59650	1.978	.65101	2.20	.59650	12.82	.60503
.618	.59680	1.979	.65116	2.21	.59680	12.83	.60608
.619	.59710	1.980	.65131	2.21	.59710	12.84	.60703
0.620	9.59730	1.981	0.65146	2.21	9.59729	12.85	0.60808
.621	.59760	1.982	.65161	2.22	.59760	12.86	.60903
.622	.59790	1.983	.65176	2.22	.59790	12.87	.61008
.623	.59820	1.984	.65191	2.23	.59820	12.88	.61103
.624	.59850	1.985	.65206	2.23	.59850	12.89	.61208
0.625	9.59870						

Logarithms of Hyperbolic Functions.

u	log sinh u	u F'	log cosh u	u F'	log tanh u	u F'	log coth u
0.400	0.61338	114.3	0.03185	16.5	0.57973	97.8	0.43047
.401	.61472	114.0	.03202	16.5	.58070	97.5	.43120
.402	.61605	113.8	.03219	16.6	.58168	97.2	.43192
.403	.61739	113.5	.03235	16.6	.58265	96.9	.43265
.404	.61873	113.3	.03252	16.6	.58361	96.6	.43338
0.405	0.61935	113.0	0.03268	16.7	0.58458	96.3	0.43412
.406	.62069	112.8	.03285	16.7	.58554	96.1	.43485
.407	.62202	112.5	.03302	16.8	.58650	95.8	.43558
.408	.62336	112.3	.03319	16.8	.58746	95.5	.43631
.409	.62470	112.0	.03335	16.8	.58841	95.2	.43704
0.410	0.62532	111.8	0.03352	16.9	0.58938	94.9	0.43777
.411	.62666	111.6	.03369	16.9	.59031	94.6	.43850
.412	.62799	111.3	.03385	16.9	.59125	94.4	.43923
.413	.62933	111.1	.03403	17.0	.59220	94.1	.43996
.414	.63067	110.8	.03420	17.0	.59314	93.8	.44069
0.415	0.63129	110.6	0.03437	17.1	0.59407	93.5	0.44142
.416	.63263	110.4	.03454	17.1	.59501	93.3	.44215
.417	.63396	110.1	.03471	17.1	.59594	93.0	.44288
.418	.63530	109.9	.03488	17.2	.59687	92.7	.44361
.419	.63664	109.6	.03505	17.2	.59779	92.4	.44434
0.420	0.63726	109.4	0.03523	17.2	0.59871	92.2	0.44507
.421	.63860	109.2	.03540	17.3	.59963	91.9	.44580
.422	.63993	109.0	.03557	17.3	.60055	91.6	.44653
.423	.64127	108.7	.03575	17.3	.60147	91.4	.44726
.424	.64260	108.5	.03592	17.4	.60238	91.1	.44799
0.425	0.64322	108.3	0.03610	17.4	0.60330	90.8	0.44872
.426	.64456	108.0	.03627	17.5	.60420	90.6	.44945
.427	.64589	107.8	.03644	17.5	.60510	90.3	.45018
.428	.64723	107.6	.03662	17.5	.60600	90.1	.45091
.429	.64857	107.4	.03680	17.6	.60690	89.8	.45164
0.430	0.64919	107.1	0.03697	17.6	0.60780	89.6	0.45237
.431	.65053	106.9	.03715	17.6	.60870	89.3	.45310
.432	.65186	106.7	.03732	17.7	.60959	89.0	.45383
.433	.65320	106.5	.03750	17.7	.61047	88.8	.45456
.434	.65454	106.3	.03768	17.7	.61135	88.5	.45529
0.435	0.65516	106.0	0.03785	17.8	0.61224	88.3	0.45602
.436	.65650	105.8	.03803	17.8	.61313	88.0	.45675
.437	.65783	105.6	.03820	17.9	.61401	87.8	.45748
.438	.65917	105.4	.03838	17.9	.61488	87.5	.45821
.439	.66051	105.2	.03855	17.9	.61576	87.3	.45894
0.440	0.66113	105.0	0.03873	18.0	0.61663	87.0	0.45967
.441	.66247	104.8	.03890	18.0	.61750	86.8	.46040
.442	.66380	104.6	.03908	18.0	.61837	86.5	.46113
.443	.66514	104.4	.03925	18.1	.61923	86.3	.46186
.444	.66648	104.2	.03943	18.1	.62009	86.1	.46259
0.445	0.66710	104.0	0.03960	18.1	0.62095	85.8	0.46332
.446	.66844	103.7	.03978	18.2	.62180	85.6	.46405
.447	.66978	103.5	.03995	18.2	.62266	85.3	.46478
.448	.67111	103.3	.04013	18.3	.62351	85.1	.46551
.449	.67245	103.1	.04030	18.3	.62436	84.9	.46624
0.450	0.67307	102.9	0.04048	18.3	0.62521	84.6	0.46697
u	log tan gd u	u F'	log sec gd u	u F'	log sin gd u	u F'	log cos gd u

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$u \text{ } ^\circ$	$\log \cosh u$	$u \text{ } ^\circ$	$\log \tanh u$	$u \text{ } ^\circ$	$\log \coth u$
0.450	0.6777	10.50	0.61295	18.3	0.66252	81.6	0.47409
.451	.67856	10.52	.61373	18.4	.66335	81.4	.47305
.452	.67934	10.55	.61451	18.4	.66400	81.1	.47210
.453	.68015	10.53	.61524	18.4	.66473	81.0	.47126
.454	.68097	10.54	.61599	18.5	.66552	81.7	.47043
0.455	0.68179	10.52	0.61673	18.5	0.66631	81.4	0.46960
.456	.68261	10.58	.61749	18.5	.66712	81.2	.46875
.457	.68343	10.56	.61824	18.6	.66797	81.0	.46793
.458	.68426	10.54	.61899	18.6	.66880	81.0	.46710
.459	.68509	10.52	.61973	18.6	.66963	81.5	.46627
0.460	0.68592	10.50	0.62047	18.7	0.67045	81.3	0.46545
.461	.68675	10.51	.62120	18.7	.67128	81.2	.46462
.462	.68758	10.50	.62193	18.7	.67210	81.8	.46381
.463	.68841	10.53	.62266	18.8	.67293	81.6	.46300
.464	.68924	10.54	.62339	18.8	.67375	81.4	.46217
0.465	0.69007	10.50	0.62413	18.9	0.67457	81.2	0.46136
.466	.69090	10.51	.62485	18.9	.67538	81.0	.46055
.467	.69173	10.57	.62557	18.9	.67619	81.7	.45973
.468	.69256	10.55	.62629	19.0	.67700	81.5	.45893
.469	.69339	10.53	.62701	19.0	.67781	81.3	.45813
0.470	0.69422	10.51	0.62773	19.0	0.67862	81.2	0.45733
.471	.69505	10.50	.62845	19.1	.67943	81.7	.45653
.472	.69588	10.52	.62917	19.1	.68024	81.6	.45573
.473	.69671	10.58	.62989	19.1	.68105	81.2	.45493
.474	.69754	10.56	.63061	19.2	.68186	81.0	.45413
0.475	0.69837	10.54	0.63133	19.2	0.68267	81.0	0.45333
.476	.69920	10.52	.63205	19.2	.68348	81.5	.45253
.477	.69999	10.58	.63277	19.2	.68429	81.6	.45173
.478	.70079	10.57	.63349	19.3	.68510	81.4	.45093
.479	.70159	10.55	.63421	19.3	.68591	81.2	.45013
0.480	0.70242	10.51	0.63493	19.4	0.68672	81.0	0.44933
.481	.70325	10.51	.63565	19.4	.68753	81.7	.44853
.482	.70408	10.50	.63637	19.4	.68834	81.6	.44773
.483	.70491	10.53	.63709	19.5	.68915	81.3	.44693
.484	.70574	10.54	.63781	19.5	.68996	81.0	.44613
0.485	0.70657	10.52	0.63853	19.6	0.69077	81.7	0.44533
.486	.70740	10.58	.63925	19.6	.69158	81.2	.44453
.487	.70823	10.56	.63997	19.6	.69239	81.5	.44373
.488	.70906	10.50	.64069	19.7	.69320	81.3	.44293
.489	.70989	10.58	.64141	19.7	.69401	81.0	.44213
0.490	0.71072	10.55	0.64213	19.8	0.69482	81.7	0.44133
.491	.71155	10.51	.64285	19.8	.69563	81.6	.44053
.492	.71238	10.53	.64357	19.8	.69644	81.5	.43973
.493	.71321	10.54	.64429	19.9	.69725	81.3	.43893
.494	.71404	10.52	.64501	19.9	.69806	81.0	.43813
0.495	0.71487	10.50	0.64573	20.0	0.69887	81.7	0.43733
.496	.71570	10.51	.64645	20.0	.69968	81.6	.43653
.497	.71653	10.57	.64717	20.0	.70049	81.2	.43573
.498	.71736	10.55	.64789	20.0	.70130	81.0	.43493
.499	.71819	10.53	.64861	20.0	.70211	81.5	.43413
0.500	0.71902	10.50	0.64933	20.1	0.70292	81.0	0.43333
u	$\log \tanh u$	$u \text{ } ^\circ$	$\log \coth u$	$u \text{ } ^\circ$	$\log \sinh u$	$u \text{ } ^\circ$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.500	9.71692	94.0	0.05217	20.1	9.66475	73.9	0.33535
.501	.71785	93.8	.05237	20.1	.66510	73.7	.33551
.502	.71879	93.7	.05257	20.1	.66543	73.5	.33567
.503	.71973	93.5	.05277	20.2	.66576	73.3	.33584
.504	.72065	93.3	.05297	20.2	.66609	73.1	.33601
0.505	0.72160	93.2	0.05317	20.2	0.66642	72.9	0.33618
.506	.72253	93.0	.05338	20.3	.66675	72.8	.33635
.507	.72346	92.9	.05358	20.3	.66708	72.6	.33652
.508	.72438	92.7	.05378	20.3	.66741	72.4	.33669
.509	.72531	92.6	.05399	20.4	.66774	72.2	.33686
0.510	9.72624	92.4	0.05419	20.4	9.66807	72.0	0.33703
.511	.72716	92.3	.05439	20.4	.66840	71.8	.33720
.512	.72808	92.1	.05460	20.5	.66873	71.6	.33737
.513	.72900	92.0	.05480	20.5	.66906	71.5	.33754
.514	.72992	91.8	.05501	20.5	.66939	71.3	.33771
0.515	9.73084	91.7	0.05521	20.6	9.66972	71.1	0.33788
.516	.73173	91.5	.05542	20.6	.67005	70.9	.33805
.517	.73265	91.4	.05563	20.6	.67038	70.7	.33822
.518	.73356	91.2	.05583	20.7	.67071	70.5	.33839
.519	.73448	91.1	.05604	20.7	.67104	70.3	.33856
0.520	9.73539	90.9	0.05625	20.7	9.67137	70.2	0.33873
.521	.73631	90.8	.05645	20.8	.67170	70.0	.33890
.522	.73722	90.6	.05666	20.8	.67203	69.8	.33907
.523	.73814	90.5	.05687	20.8	.67236	69.6	.33924
.524	.73905	90.3	.05708	20.9	.67269	69.5	.33941
0.525	9.74003	90.2	0.05729	20.9	9.67302	69.3	0.33958
.526	.74093	90.0	.05750	21.0	.67335	69.1	.33975
.527	.74185	89.9	.05771	21.0	.67368	68.9	.33992
.528	.74276	89.8	.05792	21.0	.67401	68.7	.34009
.529	.74368	89.6	.05813	21.0	.67434	68.5	.34026
0.530	9.74467	89.5	0.05834	21.1	9.67467	68.4	0.34043
.531	.74557	89.3	.05855	21.1	.67500	68.2	.34060
.532	.74648	89.2	.05876	21.1	.67533	68.0	.34077
.533	.74739	89.1	.05897	21.2	.67566	67.8	.34094
.534	.74830	88.9	.05918	21.2	.67599	67.7	.34111
0.535	9.74928	88.8	0.05939	21.3	9.67632	67.5	0.34128
.536	.74976	88.6	.05960	21.3	.67665	67.3	.34145
.537	.75065	88.5	.05981	21.3	.67698	67.1	.34162
.538	.75153	88.4	.06002	21.3	.67731	66.9	.34179
.539	.75244	88.2	.06023	21.4	.67764	66.7	.34196
0.540	9.75339	88.1	0.06044	21.4	9.67797	66.6	0.34213
.541	.75428	88.0	.06065	21.4	.67830	66.4	.34230
.542	.75516	87.8	.06086	21.5	.67863	66.3	.34247
.543	.75604	87.7	.06107	21.5	.67896	66.1	.34264
.544	.75693	87.6	.06128	21.5	.67929	66.0	.34281
0.545	9.75786	87.4	0.06149	21.6	9.67962	65.8	0.34298
.546	.75875	87.3	.06170	21.6	.67995	65.7	.34315
.547	.75963	87.2	.06191	21.6	.68028	65.5	.34332
.548	.76050	87.0	.06212	21.7	.68061	65.4	.34349
.549	.76138	86.9	.06233	21.7	.68094	65.2	.34366
0.550	9.76234	86.8	0.06254	21.7	9.68127	65.0	0.34383
u	$\log \tanh u$	$= F_1'$	$\log \sec u$	$= F_2'$	$\log \csc u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.390	0.76204	86.8	0.66662	24.7	0.69912	65.0	0.30058
.391	.76208	86.9	.66681	24.8	.70007	64.9	.29993
.392	.76212	86.9	.66700	24.8	.70072	64.7	.29928
.393	.76216	86.9	.66717	24.8	.70137	64.5	.29863
.394	.76220	86.9	.66735	24.9	.70201	64.4	.29799
0.395	0.76224	86.9	0.66751	24.9	0.70265	64.2	0.29735
.396	.76227	86.9	.66768	24.9	.70329	64.1	.29671
.397	.76231	86.9	.66785	24.9	.70393	64.0	.29607
.398	.76234	86.7	.66802	24.9	.70457	63.7	.29543
.399	.76238	86.8	.66819	24.9	.70521	63.6	.29479
0.400	0.76242	86.8	0.66836	24.9	0.70584	63.4	0.29416
.401	.76245	86.7	.66853	24.9	.70648	63.3	.29352
.402	.76249	86.7	.66870	24.9	.70713	63.1	.29288
.403	.76252	86.7	.66887	24.9	.70777	63.0	.29225
.404	.76256	86.6	.66904	24.9	.70842	62.8	.29161
0.405	0.76259	86.6	0.66921	24.9	0.70906	62.7	0.29100
.406	.76263	86.6	.66938	24.9	.70970	62.5	.29038
.407	.76266	86.6	.66955	24.9	.71035	62.3	.28975
.408	.76270	86.5	.66972	24.9	.71099	62.2	.28913
.409	.76273	86.5	.66989	24.9	.71163	62.0	.28851
0.410	0.76277	86.5	0.66999	24.9	0.71228	61.9	0.28789
.411	.76280	86.4	.67016	24.9	.71292	61.7	.28727
.412	.76284	86.4	.67033	24.9	.71357	61.6	.28665
.413	.76287	86.4	.67050	24.9	.71421	61.4	.28603
.414	.76291	86.4	.67067	24.9	.71486	61.3	.28541
0.415	0.76294	86.3	0.67084	24.9	0.71550	61.1	0.28479
.416	.76298	86.3	.67101	24.9	.71615	61.0	.28418
.417	.76301	86.3	.67118	24.9	.71679	60.8	.28356
.418	.76305	86.3	.67135	24.9	.71744	60.7	.28295
.419	.76308	86.2	.67152	24.7	.71808	60.5	.28233
0.420	0.76312	86.2	0.67169	24.7	0.71873	60.4	0.28172
.421	.76315	86.2	.67186	24.7	.71937	60.2	.28110
.422	.76319	86.2	.67203	24.7	.72002	60.1	.28049
.423	.76322	86.2	.67220	24.7	.72066	60.0	.27987
.424	.76326	86.1	.67237	24.7	.72131	59.8	.27926
0.425	0.76329	86.1	0.67254	24.7	0.72195	59.7	0.27865
.426	.76333	86.1	.67271	24.7	.72260	59.5	.27804
.427	.76336	86.1	.67288	24.7	.72324	59.4	.27743
.428	.76340	86.1	.67305	24.7	.72389	59.2	.27682
.429	.76343	86.1	.67322	24.7	.72453	59.1	.27621
.430	.76347	86.1	.67339	24.7	.72518	59.0	.27560
0.431	0.76350	86.0	0.67356	24.7	0.72582	58.8	0.27500
.432	.76354	86.0	.67373	24.7	.72647	58.7	.27439
.433	.76357	86.0	.67390	24.7	.72711	58.5	.27378
.434	.76361	86.0	.67407	24.7	.72776	58.4	.27317
.435	.76364	86.0	.67424	24.7	.72840	58.2	.27256
0.436	0.76368	86.0	0.67441	24.7	0.72905	58.1	0.27195
.437	.76371	86.0	.67458	24.7	.72969	57.9	.27134
.438	.76375	86.0	.67475	24.7	.73034	57.7	.27073
.439	.76378	86.0	.67492	24.7	.73098	57.6	.27012
0.440	0.76382	86.0	0.67509	24.7	0.73163	57.5	0.26951
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
0.600	9.80320	803	0.07187	23.4	0.73133	57.5	0.56937
.001	.80471	804	.07187	23.4	.73133	57.5	.56937
.002	.80552	805	.07187	23.4	.73133	57.5	.56937
.003	.80632	806	.07187	23.4	.73133	57.5	.56937
.004	.80713	807	.07187	23.4	.73133	57.5	.56937
0.605	9.80703	807	0.07200	23.5	0.73157	57.6	0.56973
.005	.80774	808	.07200	23.5	.73157	57.6	.56973
.006	.80854	809	.07200	23.5	.73157	57.6	.56973
.007	.80934	810	.07200	23.5	.73157	57.6	.56973
.008	.81014	811	.07200	23.5	.73157	57.6	.56973
.009	.81111	812	.07200	23.5	.73157	57.6	.56973
0.610	9.81101	812	0.07212	23.6	0.73180	57.7	0.57010
.011	.81172	813	.07212	23.6	.73180	57.7	.57010
.012	.81253	814	.07212	23.6	.73180	57.7	.57010
.013	.81333	815	.07212	23.6	.73180	57.7	.57010
.014	.81412	816	.07212	23.6	.73180	57.7	.57010
0.615	9.81501	817	0.07242	23.8	0.73210	57.9	0.57055
.016	.81571	818	.07242	23.8	.73210	57.9	.57055
.017	.81650	819	.07242	23.8	.73210	57.9	.57055
.018	.81729	820	.07242	23.8	.73210	57.9	.57055
.019	.81808	821	.07242	23.8	.73210	57.9	.57055
0.620	9.81897	822	0.07261	23.9	0.73235	58.0	0.57095
.021	.81967	823	.07261	23.9	.73235	58.0	.57095
.022	.82046	824	.07261	23.9	.73235	58.0	.57095
.023	.82125	825	.07261	23.9	.73235	58.0	.57095
.024	.82204	826	.07261	23.9	.73235	58.0	.57095
0.625	9.82293	827	0.07281	24.1	0.73265	58.2	0.57135
.026	.82362	828	.07281	24.1	.73265	58.2	.57135
.027	.82441	829	.07281	24.1	.73265	58.2	.57135
.028	.82520	830	.07281	24.1	.73265	58.2	.57135
.029	.82599	831	.07281	24.1	.73265	58.2	.57135
0.630	9.82770	832	0.07301	24.2	0.73290	58.3	0.57175
.031	.82839	833	.07301	24.2	.73290	58.3	.57175
.032	.82918	834	.07301	24.2	.73290	58.3	.57175
.033	.82997	835	.07301	24.2	.73290	58.3	.57175
.034	.83076	836	.07301	24.2	.73290	58.3	.57175
0.635	9.83158	837	0.07321	24.4	0.73320	58.5	0.57215
.036	.83227	838	.07321	24.4	.73320	58.5	.57215
.037	.83306	839	.07321	24.4	.73320	58.5	.57215
.038	.83385	840	.07321	24.4	.73320	58.5	.57215
.039	.83464	841	.07321	24.4	.73320	58.5	.57215
0.640	9.83543	842	0.07341	24.5	0.73345	58.6	0.57255
.041	.83612	843	.07341	24.5	.73345	58.6	.57255
.042	.83691	844	.07341	24.5	.73345	58.6	.57255
.043	.83770	845	.07341	24.5	.73345	58.6	.57255
.044	.83849	846	.07341	24.5	.73345	58.6	.57255
0.645	9.83927	847	0.07361	24.7	0.73375	58.8	0.57295
.046	.83996	848	.07361	24.7	.73375	58.8	.57295
.047	.84075	849	.07361	24.7	.73375	58.8	.57295
.048	.84154	850	.07361	24.7	.73375	58.8	.57295
.049	.84233	851	.07361	24.7	.73375	58.8	.57295
0.650	9.84308	852	0.07381	24.8	0.73400	58.9	0.57335
.051	.84377	853	.07381	24.8	.73400	58.9	.57335
.052	.84456	854	.07381	24.8	.73400	58.9	.57335
.053	.84535	855	.07381	24.8	.73400	58.9	.57335
.054	.84614	856	.07381	24.8	.73400	58.9	.57335
0.655	9.84692	857	0.07401	25.0	0.73430	59.1	0.57375
.056	.84761	858	.07401	25.0	.73430	59.1	.57375
.057	.84840	859	.07401	25.0	.73430	59.1	.57375
.058	.84919	860	.07401	25.0	.73430	59.1	.57375
.059	.84998	861	.07401	25.0	.73430	59.1	.57375
0.660	9.85077	862	0.07421	25.1	0.73455	59.2	0.57415
.061	.85146	863	.07421	25.1	.73455	59.2	.57415
.062	.85225	864	.07421	25.1	.73455	59.2	.57415
.063	.85304	865	.07421	25.1	.73455	59.2	.57415
.064	.85383	866	.07421	25.1	.73455	59.2	.57415
0.665	9.85461	867	0.07441	25.3	0.73485	59.4	0.57455
.066	.85530	868	.07441	25.3	.73485	59.4	.57455
.067	.85609	869	.07441	25.3	.73485	59.4	.57455
.068	.85688	870	.07441	25.3	.73485	59.4	.57455
.069	.85767	871	.07441	25.3	.73485	59.4	.57455
0.670	9.85846	872	0.07461	25.4	0.73510	59.5	0.57495
.071	.85915	873	.07461	25.4	.73510	59.5	.57495
.072	.85994	874	.07461	25.4	.73510	59.5	.57495
.073	.86073	875	.07461	25.4	.73510	59.5	.57495
.074	.86152	876	.07461	25.4	.73510	59.5	.57495
0.675	9.86300	877	0.07481	25.6	0.73540	59.7	0.57535
.076	.86369	878	.07481	25.6	.73540	59.7	.57535
.077	.86448	879	.07481	25.6	.73540	59.7	.57535
.078	.86527	880	.07481	25.6	.73540	59.7	.57535
.079	.86606	881	.07481	25.6	.73540	59.7	.57535
0.680	9.86685	882	0.07501	25.7	0.73565	59.8	0.57575
.081	.86754	883	.07501	25.7	.73565	59.8	.57575
.082	.86833	884	.07501	25.7	.73565	59.8	.57575
.083	.86912	885	.07501	25.7	.73565	59.8	.57575
.084	.86991	886	.07501	25.7	.73565	59.8	.57575
0.685	9.87159	887	0.07521	25.9	0.73595	60.0	0.57615
.086	.87228	888	.07521	25.9	.73595	60.0	.57615
.087	.87307	889	.07521	25.9	.73595	60.0	.57615
.088	.87386	890	.07521	25.9	.73595	60.0	.57615
.089	.87465	891	.07521	25.9	.73595	60.0	.57615
0.690	9.87538	892	0.07541	26.0	0.73620	60.1	0.57655
.091	.87607	893	.07541	26.0	.73620	60.1	.57655
.092	.87686	894	.07541	26.0	.73620	60.1	.57655
.093	.87765	895	.07541	26.0	.73620	60.1	.57655
.094	.87844	896	.07541	26.0	.73620	60.1	.57655
0.695	9.87917	897	0.07561	26.2	0.73650	60.3	0.57695
.096	.87986	898	.07561	26.2	.73650	60.3	.57695
.097	.88065	899	.07561	26.2	.73650	60.3	.57695
.098	.88144	900	.07561	26.2	.73650	60.3	.57695
.099	.88223	901	.07561	26.2	.73650	60.3	.57695

SMITHSONIAN TABLE

Logarithm of Hyperbolic Functions.

u	$\log \sinh u$	$= F'$	$\log \cosh u$	$= F''$	$\log \tanh u$	$= F'''$	$\log \coth u$
0.050	0.81408	7100	0.00904	218	0.75715	511	0.21285
.051	.81483	7101	.00910	219	.75760	512	.21311
.052	.81559	7102	.00916	219	.75807	513	.21337
.053	.81635	7103	.00922	220	.75854	514	.21363
.054	.81711	7104	.00928	220	.75901	515	.21389
0.055	0.81787	7105	0.00934	221	0.75948	516	0.21415
.056	.81863	7106	.00940	221	.75995	517	.21441
.057	.81939	7107	.00946	222	.76042	518	.21467
.058	.82015	7108	.00952	222	.76089	519	.21493
.059	.82091	7109	.00958	223	.76136	520	.21519
0.060	0.82167	7110	0.00964	223	0.76183	521	0.21545
.061	.82243	7111	.00970	224	.76230	522	.21571
.062	.82319	7112	.00976	224	.76277	523	.21597
.063	.82395	7113	.00982	225	.76324	524	.21623
.064	.82471	7114	.00988	225	.76371	525	.21649
.065	.82547	7115	.00994	226	.76418	526	.21675
.066	.82623	7116	.01000	226	.76465	527	.21701
.067	.82699	7117	.01006	227	.76512	528	.21727
.068	.82775	7118	.01012	227	.76559	529	.21753
.069	.82851	7119	.01018	228	.76606	530	.21779
0.070	0.82927	7120	0.01024	228	0.76653	531	0.21805
.071	.83003	7121	.01030	229	.76700	532	.21831
.072	.83079	7122	.01036	229	.76747	533	.21857
.073	.83155	7123	.01042	230	.76794	534	.21883
.074	.83231	7124	.01048	230	.76841	535	.21909
.075	.83307	7125	.01054	231	.76888	536	.21935
.076	.83383	7126	.01060	231	.76935	537	.21961
.077	.83459	7127	.01066	232	.76982	538	.21987
.078	.83535	7128	.01072	232	.77029	539	.22013
.079	.83611	7129	.01078	233	.77076	540	.22039
0.080	0.83687	7130	0.01084	233	0.77123	541	0.22065
.081	.83763	7131	.01090	234	.77170	542	.22091
.082	.83839	7132	.01096	234	.77217	543	.22117
.083	.83915	7133	.01102	235	.77264	544	.22143
.084	.83991	7134	.01108	235	.77311	545	.22169
.085	.84067	7135	.01114	236	.77358	546	.22195
.086	.84143	7136	.01120	236	.77405	547	.22221
.087	.84219	7137	.01126	237	.77452	548	.22247
.088	.84295	7138	.01132	237	.77499	549	.22273
.089	.84371	7139	.01138	238	.77546	550	.22299
.090	.84447	7140	.01144	238	.77593	551	.22325
.091	.84523	7141	.01150	239	.77640	552	.22351
.092	.84599	7142	.01156	239	.77687	553	.22377
.093	.84675	7143	.01162	240	.77734	554	.22403
.094	.84751	7144	.01168	240	.77781	555	.22429
.095	.84827	7145	.01174	241	.77828	556	.22455
.096	.84903	7146	.01180	241	.77875	557	.22481
.097	.84979	7147	.01186	242	.77922	558	.22507
.098	.85055	7148	.01192	242	.77969	559	.22533
.099	.85131	7149	.01198	243	.78016	560	.22559
.100	.85207	7150	.01204	243	.78063	561	.22585
.101	.85283	7151	.01210	244	.78110	562	.22611
.102	.85359	7152	.01216	244	.78157	563	.22637
.103	.85435	7153	.01222	245	.78204	564	.22663
.104	.85511	7154	.01228	245	.78251	565	.22689
.105	.85587	7155	.01234	246	.78298	566	.22715
.106	.85663	7156	.01240	246	.78345	567	.22741
.107	.85739	7157	.01246	247	.78392	568	.22767
.108	.85815	7158	.01252	247	.78439	569	.22793
.109	.85891	7159	.01258	248	.78486	570	.22819
.110	.85967	7160	.01264	248	.78533	571	.22845
.111	.86043	7161	.01270	249	.78580	572	.22871
.112	.86119	7162	.01276	249	.78627	573	.22897
.113	.86195	7163	.01282	250	.78674	574	.22923
.114	.86271	7164	.01288	250	.78721	575	.22949
0.115	0.86347	7165	0.01294	251	0.78768	576	0.22975
.116	.86423	7166	.01300	251	.78815	577	.23001
.117	.86499	7167	.01306	252	.78862	578	.23027
.118	.86575	7168	.01312	252	.78909	579	.23053
.119	.86651	7169	.01318	253	.78956	580	.23079
.120	.86727	7170	.01324	253	.79003	581	.23105
.121	.86803	7171	.01330	254	.79050	582	.23131
.122	.86879	7172	.01336	254	.79097	583	.23157
.123	.86955	7173	.01342	255	.79144	584	.23183
.124	.87031	7174	.01348	255	.79191	585	.23209
.125	.87107	7175	.01354	256	.79238	586	.23235
.126	.87183	7176	.01360	256	.79285	587	.23261
.127	.87259	7177	.01366	257	.79332	588	.23287
.128	.87335	7178	.01372	257	.79379	589	.23313
.129	.87411	7179	.01378	258	.79426	590	.23339
.130	.87487	7180	.01384	258	.79473	591	.23365
.131	.87563	7181	.01390	259	.79520	592	.23391
.132	.87639	7182	.01396	259	.79567	593	.23417
.133	.87715	7183	.01402	260	.79614	594	.23443
.134	.87791	7184	.01408	260	.79661	595	.23469
.135	.87867	7185	.01414	261	.79708	596	.23495
.136	.87943	7186	.01420	261	.79755	597	.23521
.137	.88019	7187	.01426	262	.79802	598	.23547
.138	.88095	7188	.01432	262	.79849	599	.23573
.139	.88171	7189	.01438	263	.79896	600	.23599
.140	.88247	7190	.01444	263	.79943	601	.23625
.141	.88323	7191	.01450	264	.79990	602	.23651
.142	.88399	7192	.01456	264	.80037	603	.23677
.143	.88475	7193	.01462	265	.80084	604	.23703
.144	.88551	7194	.01468	265	.80131	605	.23729
.145	.88627	7195	.01474	266	.80178	606	.23755
.146	.88703	7196	.01480	266	.80225	607	.23781
.147	.88779	7197	.01486	267	.80272	608	.23807
.148	.88855	7198	.01492	267	.80319	609	.23833
.149	.88931	7199	.01498	268	.80366	610	.23859
.150	.89007	7200	.01504	268	.80413	611	.23885
.151	.89083	7201	.01510	269	.80460	612	.23911
.152	.89159	7202	.01516	269	.80507	613	.23937
.153	.89235	7203	.01522	270	.80554	614	.23963
.154	.89311	7204	.01528	270	.80601	615	.23989
.155	.89387	7205	.01534	271	.80648	616	.24015
.156	.89463	7206	.01540	271	.80695	617	.24041
.157	.89539	7207	.01546	272	.80742	618	.24067
.158	.89615	7208	.01552	272	.80789	619	.24093
.159	.89691	7209	.01558	273	.80836	620	.24119
.160	.89767	7210	.01564	273	.80883	621	.24145
.161	.89843	7211	.01570	274	.80930	622	.24171
.162	.89919	7212	.01576	274	.80977	623	.24197
.163	.90095	7213	.01582	275	.81024	624	.24223
.164	.90171	7214	.01588	275	.81071	625	.24249
.165	.90247	7215	.01594	276	.81118	626	.24275
.166	.90323	7216	.01600	276	.81165	627	.24301
.167	.90399	7217	.01606	277	.81212	628	.24327
.168	.90475	7218	.01612	277	.81259	629	.24353
.169	.90551	7219	.01618	278	.81306	630	.24379
.170	.90627	7220	.01624	278	.81353	631	.24405
.171	.90703	7221	.01630	279	.81399	632	.24431
.172	.90779	7222	.01636	279	.81446	633	.24457
.173	.90855	7223	.01642	280	.81493	634	.24483
.174	.90931	7224	.01648	280	.81540	635	.24509
.175	.91007	7225	.01654	281	.81587	636	.24535
.176	.91083	7226	.01660	281	.81634	637	.24561
.177	.91159	7227	.01666	282	.81681	638	.24587
.178	.91235	7228	.01672	282	.81728	639	.24613
.179	.91311	7229	.01678	283	.81775	640	.24639
.180	.91387	7230	.01684	283	.81822	641	.24665
.181	.91463	7231	.01690	284	.81869	642	.24691
.182	.91539	7232	.01696	284	.81916	643	.24717
.183	.91615	7233	.01702	285	.81963	644	.24743
.184	.91691	7234	.01708	285	.82010	645	.24769
.185	.91767	7235	.01714	286	.82057	646	.24795
.186	.91843	7236	.01720	286	.82104	647	.24821
.187	.91919	7237	.01726	287	.82151	648	.24847
.188	.91995	7238	.01732	287	.82198	649	.24873
.189	.92071	7239	.01738	288	.82245	650	.24899
.190	.92147	7240	.01744	288	.82292	651	.24925
.191	.92223	7241	.01750	289	.82339	652	.24951
.192	.92299	7242	.01756	289	.82386	653	.24977
.193	.92375	7243	.01762	290	.82433	654	.25003
.194	.92451	7244	.01768	290	.82480	655	.25029
.195	.92527	7245	.01774	291	.82527	656	.25055
.196	.92603	7246	.01780	291	.82574	657	.25081
.197	.92679	7247	.01786	292	.82621	658	.25107
.198	.92755	7248	.01792	292	.82668	659	.25133
.199	.92831	7249	.01798	293	.82715	660	.25159
.200	.92907	7250	.01804	293	.82762	661	.25185

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.700	9.83600	71.0	0.01870	26.7	9.78130	45.0	0.20270
.701	.88372	71.8	.01891	26.3	.78177	45.5	.21031
.702	.88344	71.7	.01912	26.3	.78224	45.4	.21792
.703	.88316	71.6	.01933	26.3	.78271	45.3	.22553
.704	.88287	71.6	.01954	26.4	.78318	45.2	.23314
0.705	9.88350	71.5	0.10002	26.1	9.78365	45.1	0.24075
.706	.88320	71.4	.10028	26.1	.78412	45.0	.24836
.707	.88292	71.3	.10055	26.1	.78459	44.9	.25597
.708	.88263	71.3	.10081	26.5	.78506	44.8	.26358
.709	.88234	71.2	.10108	26.5	.78553	44.7	.27119
0.710	9.88715	71.1	0.10134	26.5	9.78600	44.6	0.27880
.711	.88685	71.0	.10160	26.5	.78647	44.5	.28641
.712	.88657	71.0	.10187	26.0	.78694	44.4	.29402
.713	.88628	70.9	.10214	26.0	.78741	44.3	.30163
.714	.88599	70.8	.10240	26.0	.78788	44.2	.30924
0.715	9.89070	70.8	0.10267	26.7	9.78835	44.1	0.31685
.716	.88541	70.7	.10293	26.7	.78882	44.0	.32446
.717	.88511	70.6	.10320	26.7	.78929	43.9	.33207
.718	.88482	70.5	.10347	26.7	.78976	43.8	.33968
.719	.88452	70.5	.10374	26.8	.79023	43.7	.34729
0.720	9.89433	70.4	0.10401	26.8	9.79070	43.6	0.35490
.721	.88423	70.3	.10427	26.8	.79117	43.5	.36251
.722	.88393	70.3	.10455	26.8	.79164	43.4	.37012
.723	.88364	70.2	.10481	26.9	.79211	43.3	.37773
.724	.88334	70.1	.10508	26.9	.79258	43.2	.38534
0.725	9.89774	70.0	0.10535	27.0	9.79305	43.1	0.39295
.726	.88314	70.0	.10562	27.0	.79352	43.0	.40056
.727	.88284	69.9	.10589	27.0	.79399	42.9	.40817
.728	.88254	69.8	.10616	27.0	.79446	42.8	.41578
.729	.88224	69.8	.10643	27.0	.79493	42.7	.42339
0.730	9.90123	69.7	0.10670	27.1	9.79540	42.6	0.43100
.731	.90103	69.6	.10697	27.1	.79587	42.5	.43861
.732	.90073	69.6	.10724	27.1	.79634	42.4	.44622
.733	.90043	69.5	.10751	27.1	.79681	42.3	.45383
.734	.90013	69.4	.10778	27.2	.79728	42.2	.46144
0.735	9.90371	69.4	0.10805	27.2	9.79775	42.1	0.46905
.736	.90340	69.3	.10832	27.2	.79822	42.0	.47666
.737	.90310	69.2	.10859	27.2	.79869	41.9	.48427
.738	.90280	69.2	.10887	27.3	.79916	41.8	.49188
.739	.90250	69.1	.10915	27.3	.79963	41.7	.50000
0.740	9.90617	69.0	0.10942	27.3	9.79995	41.6	0.50761
.741	.90285	69.0	.10969	27.3	.80042	41.5	.51522
.742	.90255	68.9	.10997	27.4	.80089	41.4	.52283
.743	.90224	68.8	.11024	27.4	.80136	41.3	.53044
.744	.90194	68.8	.11051	27.4	.80183	41.2	.53805
0.745	9.91161	68.7	0.11079	27.5	9.80230	41.1	0.54566
.746	.90130	68.7	.11105	27.5	.80277	41.0	.55327
.747	.90100	68.6	.11133	27.5	.80324	40.9	.56088
.748	.90070	68.5	.11160	27.5	.80371	40.8	.56849
.749	.90040	68.4	.11188	27.6	.80418	40.7	.57610
0.750	9.91524	68.4	0.11215	27.6	9.80465	40.6	0.58371
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
0.750	0.91991	68.4	0.11210	27.6	9.80388	40.8	0.10712
.751	.91972	68.3	.11241	27.6	.80398	40.7	.10724
.752	.91953	68.2	.11272	27.6	.80409	40.6	.10731
.753	.91934	68.2	.11303	27.2	.80410	40.5	.10750
.754	.91915	68.1	.11334	27.2	.80420	40.4	.10750
0.755	0.91896	68.1	0.11365	27.2	9.80430	40.3	0.10750
.756	.91877	68.0	.11396	27.2	.80441	40.3	.10749
.757	.91858	67.9	.11426	27.2	.80451	40.2	.10749
.758	.91839	67.9	.11457	27.2	.80461	40.1	.10749
.759	.91820	67.8	.11488	27.2	.80471	40.0	.10749
0.760	0.91801	67.7	0.11519	27.8	9.80481	39.9	0.10749
.761	.91782	67.7	.11550	27.8	.80491	39.8	.10749
.762	.91763	67.6	.11581	27.8	.80501	39.7	.10749
.763	.91744	67.6	.11612	27.8	.80511	39.6	.10749
.764	.91725	67.5	.11643	27.8	.80521	39.5	.10749
0.765	0.91706	67.4	0.11674	28.0	9.80531	39.4	0.10749
.766	.91687	67.3	.11705	28.0	.80541	39.3	.10749
.767	.91668	67.3	.11736	28.0	.80551	39.2	.10749
.768	.91649	67.3	.11767	28.0	.80561	39.1	.10749
.769	.91630	67.2	.11798	28.1	.80571	39.0	.10749
0.770	0.91611	67.1	0.11829	28.1	9.80581	38.9	0.10749
.771	.91592	67.1	.11860	28.1	.80591	38.8	.10749
.772	.91573	67.0	.11891	28.1	.80601	38.7	.10749
.773	.91554	67.0	.11922	28.2	.80611	38.6	.10749
.774	.91535	66.9	.11953	28.2	.80621	38.5	.10749
0.775	0.91516	66.8	0.11984	28.4	9.80631	38.4	0.10749
.776	.91497	66.8	.12015	28.4	.80641	38.3	.10749
.777	.91478	66.7	.12046	28.4	.80651	38.2	.10749
.778	.91459	66.7	.12077	28.5	.80661	38.1	.10749
.779	.91440	66.6	.12108	28.5	.80671	38.0	.10749
0.780	0.91421	66.5	0.12139	28.5	9.80681	37.9	0.10749
.781	.91402	66.5	.12170	28.5	.80691	37.8	.10749
.782	.91383	66.4	.12201	28.5	.80701	37.7	.10749
.783	.91364	66.4	.12232	28.5	.80711	37.6	.10749
.784	.91345	66.3	.12263	28.5	.80721	37.5	.10749
.785	.91326	66.3	.12294	28.6	.80731	37.4	.10749
0.786	0.91307	66.2	0.12325	28.6	9.80741	37.3	0.10749
.787	.91288	66.2	.12356	28.6	.80751	37.2	.10749
.788	.91269	66.1	.12387	28.6	.80761	37.1	.10749
.789	.91250	66.1	.12418	28.7	.80771	37.0	.10749
.790	.91231	66.0	.12449	28.7	.80781	36.9	.10749
0.791	0.91212	65.9	0.12480	28.7	9.80791	36.8	0.10749
.792	.91193	65.9	.12511	28.7	.80801	36.7	.10749
.793	.91174	65.8	.12542	28.7	.80811	36.6	.10749
.794	.91155	65.8	.12573	28.7	.80821	36.5	.10749
.795	.91136	65.7	.12604	28.7	.80831	36.4	.10749
.796	.91117	65.6	.12635	28.8	.80841	36.3	.10749
.797	.91098	65.6	.12666	28.8	.80851	36.2	.10749
.798	.91079	65.5	.12697	28.8	.80861	36.1	.10749
.799	.91060	65.5	.12728	28.8	.80871	36.0	.10749
0.800	0.91041	65.4	0.12759	28.8	9.80881	35.9	0.10749

BRITISH STANDARD TABLES

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F'$	$\log \cosh x$	$= F'$	$\log \tanh x$	$= F'$	$\log \coth x$
0.800	9.00116	65.4	0.12647	23.8	9.82219	36.0	0.17781
.801	.00122	65.4	.12650	23.9	.82225	36.1	.17784
.802	.00127	65.4	.12655	23.9	.82232	36.1	.17788
.803	.00132	65.4	.12661	23.9	.82239	36.1	.17791
.804	.00138	65.4	.12667	23.9	.82245	36.2	.17795
0.805	9.00173	65.4	0.12772	24.0	9.82301	36.2	0.17809
.806	.00238	65.4	.12801	24.0	.82337	36.1	.17803
.807	.00303	65.6	.12830	24.0	.82373	36.0	.17847
.808	.00368	65.6	.12859	24.0	.82409	35.9	.17891
.809	.00433	64.9	.12888	24.1	.82445	35.9	.17935
0.810	9.00468	64.9	0.12917	24.1	9.82581	35.8	0.17979
.811	.00503	64.8	.12946	24.1	.12517	35.7	.17983
.812	.00527	64.8	.12975	24.1	.82552	35.6	.17988
.813	.00552	64.7	.13004	24.2	.82588	35.5	.17992
.814	.00577	64.6	.13033	24.2	.82623	35.5	.17997
0.815	9.00611	64.6	0.13063	24.2	9.82759	35.4	0.18041
.816	.00635	64.5	.13092	24.2	.82794	35.3	.18045
.817	.00659	64.5	.13121	24.2	.82830	35.2	.18049
.818	.00684	64.4	.13150	24.2	.82865	35.2	.18053
.819	.00709	64.4	.13180	24.3	.82900	35.1	.18057
0.820	9.00744	64.3	0.13209	24.3	9.83035	35.0	0.18101
.821	.00768	64.3	.13238	24.3	.83070	34.9	.18105
.822	.00792	64.2	.13268	24.4	.83105	34.9	.18109
.823	.00816	64.2	.13297	24.4	.83140	34.8	.18113
.824	.00841	64.1	.13326	24.4	.83174	34.7	.18117
0.825	9.00875	64.1	0.13355	24.4	9.83210	34.6	0.18161
.826	.00899	64.0	.13385	24.5	.83244	34.6	.18165
.827	.00923	64.0	.13414	24.5	.83278	34.5	.18169
.828	.00947	63.9	.13443	24.5	.83313	34.4	.18173
.829	.00971	63.9	.13472	24.5	.83347	34.3	.18177
0.830	9.00984	63.8	0.13503	24.6	9.83381	34.3	0.18221
.831	.00988	63.8	.13533	24.6	.83416	34.2	.18225
.832	.00992	63.7	.13562	24.6	.83450	34.1	.18229
.833	.01007	63.7	.13592	24.6	.83484	34.0	.18233
.834	.01030	63.6	.13622	24.6	.83518	34.0	.18237
0.835	9.01063	63.6	0.13651	24.7	9.83552	33.9	0.18281
.836	.01067	63.5	.13681	24.7	.83586	33.8	.18285
.837	.01090	63.5	.13711	24.7	.83620	33.8	.18289
.838	.01113	63.4	.13740	24.7	.83654	33.7	.18293
.839	.01137	63.4	.13770	24.8	.83688	33.6	.18297
0.840	9.01170	63.3	0.13800	24.8	9.83722	33.5	0.18341
.841	.01184	63.3	.13830	24.8	.83756	33.4	.18345
.842	.01207	63.2	.13860	24.8	.83790	33.4	.18349
.843	.01230	63.2	.13890	24.9	.83824	33.3	.18353
.844	.01253	63.1	.13919	24.9	.83858	33.3	.18357
0.845	9.01275	63.1	0.13949	24.9	9.83892	33.2	0.18401
.846	.01299	63.0	.13979	24.9	.83926	33.1	.18405
.847	.01322	63.0	.14009	24.9	.83960	33.0	.18409
.848	.01345	63.0	.14039	24.9	.83994	33.0	.18413
.849	.01368	63.0	.14069	24.9	.84028	32.9	.18417
0.850	9.01391	62.8	0.14099	24.9	9.84062	32.8	0.18461
x	$\log \sinh x$	$= F'$	$\log \cosh x$	$= F'$	$\log \tanh x$	$= F'$	$\log \coth x$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\omega F'$	$\log \cosh u$	$\omega F'$	$\log \tanh u$	$\omega F'$	$\log \coth u$
0.000	0.00137	60.6	0.15147	31.1	9.85599	29.5	0.14491
.001	0.01107	60.6	.15095	31.1	.85530	29.5	.14401
.002	.02028	60.5	.15040	31.1	.85468	29.4	.14310
.003	.02918	60.5	.15021	31.2	.85398	29.3	.14220
.004	.03799	60.5	.15007	31.2	.85327	29.3	.14129
0.005	0.04720	60.4	0.15081	31.2	9.85665	29.2	0.14344
.006	.05590	60.4	.15011	31.2	.85605	29.2	.14255
.007	.06450	60.3	.15000	31.3	.85515	29.1	.14165
.008	.07300	60.3	.15007	31.3	.85431	29.0	.14075
.009	.08181	60.3	.15008	31.3	.85371	29.0	.13984
0.010	0.07741	60.2	0.15031	31.3	9.85601	28.9	0.14199
.011	.08601	60.2	.15007	31.3	.85600	28.8	.14109
.012	.09481	60.1	.15002	31.4	.85600	28.8	.14019
.013	.10392	60.1	.15003	31.4	.85608	28.7	.13929
.014	.11331	60.1	.15005	31.4	.85617	28.7	.13839
0.015	0.09801	60.0	0.15000	31.4	9.85615	28.6	0.14055
.016	.02101	60.0	.15028	31.4	.85607	28.5	.13965
.017	.02210	59.9	.15030	31.5	.85602	28.5	.13875
.018	.02321	59.9	.15010	31.5	.85601	28.4	.13785
.019	.02481	59.9	.15022	31.5	.85610	28.4	.13695
0.020	0.02341	59.8	0.15051	31.5	9.85681	28.3	0.13911
.021	.04401	59.8	.15085	31.5	.85616	28.2	.13821
.022	.04461	59.8	.15037	31.6	.85611	28.2	.13731
.023	.04500	59.7	.15038	31.6	.85617	28.1	.13641
.024	.04580	59.7	.15080	31.6	.85620	28.1	.13550
0.025	0.04600	59.6	0.15111	31.6	9.85628	28.0	0.13767
.026	.04690	59.6	.15143	31.6	.85620	27.9	.13677
.027	.04730	59.6	.15173	31.7	.85621	27.9	.13587
.028	.04810	59.5	.15160	31.7	.85612	27.8	.13497
.029	.04890	59.5	.15158	31.7	.85610	27.8	.13407
0.030	0.04907	59.4	0.15170	31.7	9.85698	27.7	0.13622
.031	.05007	59.4	.15102	31.7	.85695	27.7	.13532
.032	.05090	59.4	.15133	31.8	.85613	27.6	.13442
.033	.05176	59.3	.15165	31.8	.85610	27.5	.13352
.034	.05175	59.3	.15167	31.8	.85618	27.5	.13262
0.035	0.05234	59.3	0.15170	31.8	9.85695	27.4	0.13478
.036	.05290	59.2	.15191	31.9	.85613	27.4	.13388
.037	.05353	59.2	.15192	31.9	.85610	27.3	.13298
.038	.05412	59.1	.15183	31.9	.85617	27.3	.13208
.039	.05471	59.1	.15185	31.9	.85615	27.2	.13118
0.040	0.05530	59.1	0.15188	31.9	9.85612	27.1	0.13334
.041	.05590	59.0	.15190	32.0	.85600	27.1	.13244
.042	.05618	59.0	.15192	32.0	.85600	27.0	.13154
.043	.05707	59.0	.15283	32.0	.85721	27.0	.13064
.044	.05766	58.9	.17016	32.0	.85950	26.9	.12974
0.045	0.05835	58.9	0.17018	32.0	9.85777	26.8	0.13190
.046	.05881	58.9	.17080	32.0	.85801	26.8	.13100
.047	.05943	58.8	.17112	32.1	.85830	26.7	.13010
.048	.05991	58.8	.17141	32.1	.85867	26.7	.12920
.049	.06060	58.7	.17170	32.1	.85881	26.6	.12830
0.050	0.06110	58.7	0.17208	32.1	9.85910	26.5	0.13046
u	$\log \sinh u$	$\omega F'$	$\log \cosh u$	$\omega F'$	$\log \tanh u$	$\omega F'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F'$	$\log \cosh u$	$= F'$	$\log \tanh u$	$= F'$	$\log \coth u$
0.050	0.01110	58.7	0.42468	34.1	9.86930	26.0	0.13060
0.051	0.01128	58.7	0.42481	34.1	9.86937	26.0	0.13063
0.052	0.01146	58.6	0.42494	34.2	9.86944	26.0	0.13067
0.053	0.01165	58.6	0.42507	34.2	9.86951	26.0	0.13070
0.054	0.01183	58.6	0.42520	34.2	9.86958	26.0	0.13074
0.055	0.01201	58.5	0.42533	34.2	9.86965	26.0	0.13077
0.056	0.01220	58.5	0.42546	34.2	9.86972	26.0	0.13081
0.057	0.01238	58.5	0.42559	34.3	9.86979	26.0	0.13085
0.058	0.01257	58.4	0.42572	34.3	9.86986	26.1	0.13089
0.059	0.01275	58.4	0.42585	34.3	9.86993	26.1	0.13093
0.060	0.01294	58.4	0.42598	34.3	9.86999	26.0	0.13097
0.061	0.01312	58.3	0.42611	34.3	9.87006	26.0	0.13101
0.062	0.01331	58.3	0.42624	34.4	9.87013	26.0	0.13105
0.063	0.01349	58.3	0.42637	34.4	9.87020	26.0	0.13109
0.064	0.01368	58.2	0.42650	34.4	9.87027	25.8	0.13113
0.065	0.01386	58.2	0.42663	34.4	9.87034	25.8	0.13117
0.066	0.01405	58.1	0.42676	34.4	9.87041	25.7	0.13121
0.067	0.01423	58.1	0.42689	34.5	9.87048	25.7	0.13125
0.068	0.01442	58.1	0.42702	34.5	9.87055	25.6	0.13129
0.069	0.01460	58.0	0.42715	34.5	9.87062	25.6	0.13133
0.070	0.01479	58.0	0.42728	34.5	9.87069	25.5	0.13137
0.071	0.01497	58.0	0.42741	34.5	9.87076	25.4	0.13141
0.072	0.01516	57.9	0.42754	34.6	9.87083	25.4	0.13145
0.073	0.01534	57.9	0.42767	34.6	9.87090	25.3	0.13149
0.074	0.01553	57.9	0.42780	34.6	9.87097	25.3	0.13153
0.075	0.01571	57.8	0.42793	34.6	9.87104	25.2	0.13157
0.076	0.01590	57.8	0.42806	34.6	9.87111	25.2	0.13161
0.077	0.01608	57.8	0.42819	34.6	9.87118	25.1	0.13165
0.078	0.01627	57.7	0.42832	34.7	9.87125	25.1	0.13169
0.079	0.01645	57.7	0.42845	34.7	9.87132	25.0	0.13173
0.080	0.01664	57.7	0.42858	34.7	9.87139	25.0	0.13177
0.081	0.01682	57.6	0.42871	34.7	9.87146	24.9	0.13181
0.082	0.01701	57.6	0.42884	34.7	9.87153	24.9	0.13185
0.083	0.01719	57.6	0.42897	34.8	9.87160	24.8	0.13189
0.084	0.01738	57.5	0.42910	34.8	9.87167	24.8	0.13193
0.085	0.01756	57.5	0.42923	34.8	9.87174	24.7	0.13197
0.086	0.01775	57.5	0.42936	34.8	9.87181	24.7	0.13201
0.087	0.01793	57.4	0.42949	34.8	9.87188	24.6	0.13205
0.088	0.01812	57.4	0.42962	34.9	9.87195	24.5	0.13209
0.089	0.01830	57.4	0.42975	34.9	9.87202	24.5	0.13213
0.090	0.01849	57.3	0.42988	34.9	9.87209	24.5	0.13217
0.091	0.01867	57.3	0.43001	34.9	9.87216	24.4	0.13221
0.092	0.01886	57.3	0.43014	34.9	9.87223	24.3	0.13225
0.093	0.01904	57.2	0.43027	34.9	9.87230	24.3	0.13229
0.094	0.01923	57.2	0.43040	34.9	9.87237	24.2	0.13233
0.095	0.01941	57.2	0.43053	34.9	9.87244	24.2	0.13237
0.096	0.01960	57.1	0.43066	34.9	9.87251	24.1	0.13241
0.097	0.01978	57.1	0.43079	34.9	9.87258	24.1	0.13245
0.098	0.01997	57.1	0.43092	34.9	9.87265	24.0	0.13249
0.099	0.02015	57.0	0.43105	34.9	9.87272	24.0	0.13253
0.100	0.02034	57.0	0.43118	34.9	9.87279	23.9	0.13257
0.101	0.02052	56.9	0.43131	34.9	9.87286	23.9	0.13261
0.102	0.02071	56.9	0.43144	34.9	9.87293	23.8	0.13265
0.103	0.02089	56.9	0.43157	34.9	9.87300	23.8	0.13269
0.104	0.02108	56.8	0.43170	34.9	9.87307	23.7	0.13273
0.105	0.02126	56.8	0.43183	34.9	9.87314	23.7	0.13277
0.106	0.02145	56.8	0.43196	34.9	9.87321	23.6	0.13281
0.107	0.02163	56.7	0.43209	34.9	9.87328	23.6	0.13285
0.108	0.02182	56.7	0.43222	34.9	9.87335	23.5	0.13289
0.109	0.02200	56.7	0.43235	34.9	9.87342	23.5	0.13293
0.110	0.02219	56.6	0.43248	34.9	9.87349	23.4	0.13297
0.111	0.02237	56.6	0.43261	34.9	9.87356	23.4	0.13301
0.112	0.02256	56.6	0.43274	34.9	9.87363	23.3	0.13305
0.113	0.02274	56.5	0.43287	34.9	9.87370	23.3	0.13309
0.114	0.02293	56.5	0.43300	34.9	9.87377	23.2	0.13313
0.115	0.02311	56.5	0.43313	34.9	9.87384	23.2	0.13317
0.116	0.02330	56.4	0.43326	34.9	9.87391	23.1	0.13321
0.117	0.02348	56.4	0.43339	34.9	9.87398	23.1	0.13325
0.118	0.02367	56.4	0.43352	34.9	9.87405	23.0	0.13329
0.119	0.02385	56.3	0.43365	34.9	9.87412	23.0	0.13333
0.120	0.02404	56.3	0.43378	34.9	9.87419	22.9	0.13337
0.121	0.02422	56.3	0.43391	34.9	9.87426	22.9	0.13341
0.122	0.02441	56.2	0.43404	34.9	9.87433	22.8	0.13345
0.123	0.02459	56.2	0.43417	34.9	9.87440	22.8	0.13349
0.124	0.02478	56.2	0.43430	34.9	9.87447	22.7	0.13353
0.125	0.02496	56.1	0.43443	34.9	9.87454	22.7	0.13357
0.126	0.02515	56.1	0.43456	34.9	9.87461	22.6	0.13361
0.127	0.02533	56.1	0.43469	34.9	9.87468	22.6	0.13365
0.128	0.02552	56.0	0.43482	34.9	9.87475	22.5	0.13369
0.129	0.02570	56.0	0.43495	34.9	9.87482	22.5	0.13373
0.130	0.02589	56.0	0.43508	34.9	9.87489	22.4	0.13377
0.131	0.02607	55.9	0.43521	34.9	9.87496	22.4	0.13381
0.132	0.02626	55.9	0.43534	34.9	9.87503	22.3	0.13385
0.133	0.02644	55.9	0.43547	34.9	9.87510	22.3	0.13389
0.134	0.02663	55.8	0.43560	34.9	9.87517	22.2	0.13393
0.135	0.02681	55.8	0.43573	34.9	9.87524	22.2	0.13397
0.136	0.02700	55.8	0.43586	34.9	9.87531	22.1	0.13401
0.137	0.02718	55.7	0.43599	34.9	9.87538	22.1	0.13405
0.138	0.02737	55.7	0.43612	34.9	9.87545	22.0	0.13409
0.139	0.02755	55.7	0.43625	34.9	9.87552	22.0	0.13413
0.140	0.02774	55.6	0.43638	34.9	9.87559	21.9	0.13417
0.141	0.02792	55.6	0.43651	34.9	9.87566	21.9	0.13421
0.142	0.02811	55.6	0.43664	34.9	9.87573	21.8	0.13425
0.143	0.02829	55.5	0.43677	34.9	9.87580	21.8	0.13429
0.144	0.02848	55.5	0.43690	34.9	9.87587	21.7	0.13433
0.145	0.02866	55.5	0.43703	34.9	9.87594	21.7	0.13437
0.146	0.02885	55.4	0.43716	34.9	9.87601	21.6	0.13441
0.147	0.02903	55.4	0.43729	34.9	9.87608	21.6	0.13445
0.148	0.02922	55.4	0.43742	34.9	9.87615	21.5	0.13449
0.149	0.02940	55.3	0.43755	34.9	9.87622	21.5	0.13453
0.150	0.02959	55.3	0.43768	34.9	9.87629	21.4	0.13457
0.151	0.02977	55.3	0.43781	34.9	9.87636	21.4	0.13461
0.152	0.02996	55.2	0.43794	34.9	9.87643	21.3	0.13465
0.153	0.03014	55.2	0.43807	34.9	9.87650	21.3	0.13469
0.154	0.03033	55.2	0.43820	34.9	9.87657	21.2	0.13473
0.155	0.03051	55.1	0.43833	34.9	9.87664	21.2	0.13477
0.156	0.03070	55.1	0.43846	34.9	9.87671	21.1	0.13481
0.157	0.03088	55.1	0.43859	34.9	9.87678	21.1	0.13485
0.158	0.03107	55.0	0.43872	34.9	9.87685	21.0	0.13489
0.159	0.03125	55.0	0.43885	34.9	9.87692	21.0	0.13493
0.160	0.03144	55.0	0.43898	34.9	9.87699	20.9	0.13497
0.161	0.03162	54.9	0.43911	34.9	9.87706	20.9	0.13501
0.162	0.03181	54.9	0.43924	34.9	9.87713	20.8	0.13505
0.163	0.03199	54.9	0.43937	34.9	9.87720	20.8	0.13509
0.164	0.03218	54.8	0.43950	34.9	9.87727	20.7	0.13513
0.165	0.03236	54.8	0.43963	34.9	9.87734	20.7	0.13517
0.166	0.03255	54.8	0.43976	34.9	9.87741	20.6	0.13521
0.167	0.03273	54.7	0.43989	34.9	9.87748	20.6	0.13525
0.168	0.03292	54.7	0.44002	34.9	9.87755	20.5	0.13529
0.169	0.03310	54.7	0.44015	34.9	9.87762	20.5	0.13533
0.170	0.03329	54.6	0.44028	34.9	9.87769	20.4	0.13537
0.171	0.03347	54.6	0.44041	34.9	9.87776	20.4	0.13541
0.172	0.03366	54.6	0.44054	34.9	9.87783	20.3	0.13545
0.173	0.03384	54.5	0.44067	34.9	9.87790	20.3	0.13549
0.174	0.03403	54.5	0.44080	34.9	9.87797	20.2	0.13553
0.175	0.03421	54.5	0.44093	34.9	9.87804	20.2	0.13557
0.176	0.03440	54.4	0.44106	34.9	9.87811	20.1	0.13561
0.177	0.03458	54.4	0.44119	34.9	9.87818	20.1	0.13565
0.178	0.03477	54.4	0.44132	34.9	9.87825	20.0	0.13569
0.179	0.03495	54.3	0.44145	34.9	9.87832	20.0	0.13573
0.180	0.03514	54.3	0.44158	34.9	9.87839	19.9	0.13577
0.181	0.03532	54.3	0.44171	34.9	9.87846	19.9	0.13581
0.182	0.03551	54.2	0.44184	34.9	9.87853	19.8	0.13585
0.183	0.03569	54.2	0.44197	34.9	9.87860	19.8	0.13589
0.184	0.03588	54.2	0.44210	34.9	9.87867	19.7	0.13593
0.185	0.03606	54.1	0.44223	34.9	9.878		

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
1.000	0.02011	57.0	0.18839	33.1	9.88172	21.0	0.11838
.001	.07046	57.0	.18872	33.1	.88109	21.0	.11834
.002	.07125	57.0	.18905	33.1	.88220	21.0	.11830
.003	.07203	57.0	.18938	33.1	.88331	21.0	.11826
.004	.07280	57.0	.18971	33.1	.88441	21.0	.11822
1.005	0.07296	57.0	0.19004	33.1	9.88501	21.0	0.11819
.006	.07353	57.0	.19038	33.1	.88515	21.0	.11815
.007	.07410	57.0	.19071	33.1	.88530	21.0	.11811
.008	.07466	57.0	.19104	33.1	.88545	21.0	.11808
.009	.07523	57.0	.19137	33.1	.88560	21.0	.11804
1.010	0.07530	57.0	0.19171	33.1	9.88699	21.0	0.11801
.011	.07617	57.0	.19204	33.1	.88713	21.0	.11797
.012	.07693	57.0	.19237	33.1	.88728	21.0	.11793
.013	.07770	57.0	.19270	33.1	.88743	21.0	.11790
.014	.07847	57.0	.19304	33.1	.88758	21.0	.11786
1.015	0.07853	57.0	0.19337	33.1	9.88856	21.0	0.11783
.016	.07920	57.0	.19370	33.1	.88870	21.0	.11779
.017	.07996	57.0	.19404	33.1	.88885	21.0	.11775
.018	.08073	57.0	.19437	33.1	.88900	21.0	.11772
.019	.08150	57.0	.19471	33.1	.88915	21.0	.11768
1.020	0.08156	57.0	0.19504	33.1	9.88930	21.0	0.11765
.021	.08202	57.0	.19537	33.1	.88945	21.0	.11761
.022	.08258	57.0	.19571	33.1	.88960	21.0	.11757
.023	.08315	57.0	.19604	33.1	.88975	21.0	.11754
.024	.08371	57.0	.19638	33.1	.88990	21.0	.11750
1.025	0.08377	57.0	0.19671	33.1	9.89005	21.0	0.11747
.026	.08434	57.0	.19704	33.1	.89020	21.0	.11743
.027	.08490	57.0	.19738	33.1	.89035	21.0	.11739
.028	.08546	57.0	.19772	33.1	.89050	21.0	.11735
.029	.08603	57.0	.19805	33.1	.89065	21.0	.11732
1.030	0.08609	57.0	0.19839	33.1	9.89080	21.0	0.11729
.031	.08665	57.0	.19872	33.1	.89095	21.0	.11725
.032	.08721	57.0	.19906	33.1	.89110	21.0	.11721
.033	.08777	57.0	.19940	33.1	.89125	21.0	.11717
.034	.08833	57.0	.19974	33.1	.89140	21.0	.11714
1.035	0.08839	57.0	0.19997	33.1	9.89155	21.0	0.11711
.036	.09044	55.9	.20041	33.7	.89200	21.2	.11937
.037	.09100	55.9	.20075	33.7	.89225	21.2	.11975
.038	.09156	55.9	.20109	33.7	.89250	21.2	.11952
.039	.09212	55.9	.20142	33.8	.89275	21.2	.11930
1.040	0.09218	55.8	0.20176	33.8	9.89290	21.0	0.11928
.041	.09324	55.8	.20210	33.8	.89315	21.0	.11984
.042	.09379	55.8	.20244	33.8	.89340	21.0	.11981
.043	.09435	55.7	.20278	33.8	.89365	21.0	.11978
.044	.09491	55.7	.20311	33.9	.89390	21.0	.11975
1.045	0.09497	55.7	0.20345	33.9	9.89405	21.0	0.11972
.046	.09603	55.7	.20379	33.9	.89430	21.0	.11977
.047	.09658	55.6	.20413	33.9	.89455	21.0	.11975
.048	.09714	55.6	.20447	33.9	.89480	21.0	.11973
.049	.09770	55.6	.20481	33.9	.89505	21.0	.11971
1.050	0.09776	55.6	0.20515	34.0	9.89520	21.0	0.11968
u	log tanh u	= F'	log coth u	= F'	log tanh u	= F'	log coth u

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.050	0.0015	55.6	0.0015	31.0	9.80110	21.6	0.00090
1.051	0.0015	55.5	0.0015	31.0	9.80131	21.6	0.00091
1.052	0.0015	55.5	0.0015	31.0	9.80151	21.6	0.00092
1.053	0.0015	55.5	0.0015	31.0	9.80172	21.6	0.00093
1.054	0.0015	55.4	0.0015	31.0	9.80192	21.6	0.00094
1.055	0.0016	55.4	0.0015	31.0	9.80212	21.6	0.00095
1.056	0.0016	55.4	0.0015	31.1	9.80233	21.6	0.00096
1.057	0.0016	55.4	0.0015	31.1	9.80253	21.6	0.00097
1.058	0.0016	55.3	0.0015	31.1	9.80274	21.6	0.00098
1.059	0.0016	55.3	0.0015	31.1	9.80294	21.6	0.00099
1.060	0.0017	55.3	0.0015	31.1	9.80315	21.6	0.00100
1.061	0.0017	55.3	0.0015	31.1	9.80335	21.6	0.00101
1.062	0.0017	55.2	0.0015	31.2	9.80356	21.6	0.00102
1.063	0.0017	55.2	0.0015	31.2	9.80376	21.6	0.00103
1.064	0.0017	55.2	0.0015	31.2	9.80397	21.6	0.00104
1.065	0.0018	55.1	0.0015	31.2	9.80417	21.6	0.00105
1.066	0.0018	55.1	0.0015	31.2	9.80438	21.6	0.00106
1.067	0.0018	55.1	0.0015	31.2	9.80458	21.6	0.00107
1.068	0.0018	55.1	0.0015	31.2	9.80479	21.6	0.00108
1.069	0.0018	55.0	0.0015	31.3	9.80499	21.6	0.00109
1.070	0.0018	55.0	0.0015	31.3	9.80520	21.6	0.00110
1.071	0.0019	55.0	0.0015	31.3	9.80540	21.7	0.00111
1.072	0.0019	55.0	0.0015	31.3	9.80561	21.7	0.00112
1.073	0.0019	55.0	0.0015	31.3	9.80581	21.7	0.00113
1.074	0.0019	54.9	0.0015	31.3	9.80602	21.7	0.00114
1.075	0.0019	54.9	0.0015	31.3	9.80622	21.7	0.00115
1.076	0.0020	54.9	0.0015	31.4	9.80643	21.7	0.00116
1.077	0.0020	54.9	0.0015	31.4	9.80663	21.7	0.00117
1.078	0.0020	54.8	0.0015	31.4	9.80684	21.7	0.00118
1.079	0.0020	54.8	0.0015	31.4	9.80704	21.7	0.00119
1.080	0.0021	54.8	0.0015	31.4	9.80725	21.7	0.00120
1.081	0.0021	54.8	0.0015	31.4	9.80745	21.7	0.00121
1.082	0.0021	54.7	0.0015	31.4	9.80766	21.7	0.00122
1.083	0.0021	54.7	0.0015	31.4	9.80786	21.7	0.00123
1.084	0.0022	54.7	0.0015	31.4	9.80807	21.7	0.00124
1.085	0.0022	54.7	0.0015	31.4	9.80827	21.7	0.00125
1.086	0.0022	54.6	0.0015	31.4	9.80848	21.7	0.00126
1.087	0.0022	54.6	0.0015	31.4	9.80868	21.7	0.00127
1.088	0.0023	54.6	0.0015	31.4	9.80889	21.7	0.00128
1.089	0.0023	54.5	0.0015	31.4	9.80909	21.7	0.00129
1.090	0.0023	54.5	0.0015	31.4	9.80930	21.7	0.00130
1.091	0.0023	54.5	0.0015	31.4	9.80950	21.7	0.00131
1.092	0.0024	54.4	0.0015	31.4	9.80971	21.7	0.00132
1.093	0.0024	54.4	0.0015	31.4	9.80991	21.7	0.00133
1.094	0.0024	54.4	0.0015	31.4	9.81012	21.7	0.00134
1.095	0.0024	54.4	0.0015	31.4	9.81032	21.7	0.00135
1.096	0.0025	54.3	0.0015	31.4	9.81053	21.7	0.00136
1.097	0.0025	54.3	0.0015	31.4	9.81073	21.7	0.00137
1.098	0.0025	54.3	0.0015	31.4	9.81094	21.7	0.00138
1.099	0.0025	54.3	0.0015	31.4	9.81114	21.7	0.00139
1.100	0.0026	54.2	0.0015	31.4	9.81135	21.7	0.00140
u	$\log \tanh u$	$= F_1'$	$\log \coth u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.100	0.12969	54.3	0.22231	34.8	0.09338	80.3	0.09338
1.101	.12971	54.2	.22229	34.8	.09336	80.4	.09336
1.102	.12973	54.2	.22227	34.8	.09334	80.4	.09334
1.103	.12975	54.2	.22225	34.8	.09332	80.4	.09332
1.104	.12977	54.2	.22223	34.8	.09330	80.4	.09330
1.105	.12979	54.1	.22221	34.8	.09328	80.5	.09328
1.106	.12981	54.1	.22219	34.9	.09326	80.5	.09326
1.107	.12983	54.1	.22217	34.9	.09324	80.5	.09324
1.108	.12985	54.1	.22215	34.9	.09322	80.5	.09322
1.109	.12987	54.0	.22213	34.9	.09320	80.6	.09320
1.110	0.13111	54.0	0.22989	34.9	0.09339	80.1	0.09339
1.111	.13113	54.0	.22987	34.9	.09337	80.1	.09337
1.112	.13115	54.0	.22985	35.0	.09335	80.1	.09335
1.113	.13117	54.0	.22983	35.0	.09333	80.1	.09333
1.114	.13119	54.0	.22981	35.0	.09331	80.1	.09331
1.115	0.13380	53.9	0.22790	35.0	0.09342	80.2	0.09342
1.116	.13382	53.9	.22788	35.0	.09340	80.2	.09340
1.117	.13384	53.8	.22786	35.0	.09338	80.2	.09338
1.118	.13386	53.8	.22784	35.0	.09336	80.2	.09336
1.119	.13388	53.8	.22782	35.1	.09334	80.2	.09334
1.120	0.13600	53.8	0.22931	35.1	0.09348	80.2	0.09348
1.121	.13602	53.8	.22929	35.1	.09346	80.2	.09346
1.122	.13604	53.7	.22927	35.1	.09344	80.3	.09344
1.123	.13606	53.7	.22925	35.1	.09342	80.3	.09342
1.124	.13608	53.7	.22923	35.1	.09340	80.3	.09340
1.125	0.13908	53.7	0.22767	35.1	0.09351	80.3	0.09351
1.126	.13910	53.6	.22765	35.2	.09349	80.3	.09349
1.127	.13912	53.6	.22763	35.2	.09347	80.3	.09347
1.128	.13914	53.6	.22761	35.2	.09345	80.3	.09345
1.129	.13916	53.6	.22759	35.2	.09343	80.4	.09343
1.130	0.14186	53.5	0.22583	35.2	0.09353	80.3	0.09353
1.131	.14188	53.5	.22581	35.2	.09351	80.3	.09351
1.132	.14190	53.5	.22579	35.3	.09349	80.3	.09349
1.133	.14192	53.5	.22577	35.3	.09347	80.4	.09347
1.134	.14194	53.5	.22575	35.3	.09345	80.4	.09345
1.135	0.14454	53.4	0.22399	35.3	0.09359	80.3	0.09359
1.136	.14456	53.4	.22397	35.3	.09357	80.3	.09357
1.137	.14458	53.4	.22395	35.3	.09355	80.4	.09355
1.138	.14460	53.4	.22393	35.3	.09353	80.4	.09353
1.139	.14462	53.3	.22391	35.4	.09351	80.4	.09351
1.140	0.14720	53.3	0.22210	35.4	0.09365	80.3	0.09365
1.141	.14722	53.3	.22208	35.4	.09363	80.3	.09363
1.142	.14724	53.3	.22206	35.4	.09361	80.4	.09361
1.143	.14726	53.3	.22204	35.4	.09359	80.4	.09359
1.144	.14728	53.2	.22202	35.4	.09357	80.4	.09357
1.145	0.15009	53.2	0.22013	35.4	0.09371	80.3	0.09371
1.146	.15011	53.2	.22011	35.5	.09369	80.3	.09369
1.147	.15013	53.2	.22009	35.5	.09367	80.3	.09367
1.148	.15015	53.2	.22007	35.5	.09365	80.4	.09365
1.149	.15017	53.1	.22005	35.5	.09363	80.4	.09363
1.150	0.15283	53.1	0.21800	35.5	0.09376	80.3	0.09376
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
1.199	0.15151	5.51	0.20000	35.5	9.04262	17.0	0.08738
.151	.15300	5.51	.20000	35.5	.01280	17.0	.08720
.152	.15450	5.51	.20000	35.5	.01297	17.5	.08703
.153	.15601	5.50	.20007	35.0	.01315	17.5	.08685
.154	.15755	5.50	.21133	35.0	.01332	17.5	.08668
1.195	0.15055	5.50	0.21108	35.0	9.01159	17.4	0.08650
.195	.15201	5.50	.21108	35.0	.01170	17.4	.08633
.196	.15349	5.50	.21130	35.0	.01185	17.3	.08615
.197	.15497	5.50	.21195	35.0	.01192	17.3	.08598
.198	.15645	5.50	.21311	35.0	.01199	17.3	.08581
1.190	0.14961	5.49	0.21310	35.7	9.01136	17.2	0.08564
.190	.15108	5.49	.21382	35.7	.01151	17.2	.08546
.191	.15254	5.49	.21468	35.7	.01171	17.2	.08529
.192	.15401	5.48	.21453	35.7	.01188	17.1	.08512
.193	.15548	5.48	.21480	35.7	.01205	17.1	.08495
1.185	0.14867	5.48	0.21535	35.7	9.01531	17.1	0.08478
.185	.15013	5.48	.21590	35.7	.01539	17.0	.08461
.186	.15158	5.47	.21660	35.8	.01559	17.0	.08444
.187	.15303	5.47	.21682	35.8	.01573	17.0	.08427
.188	.15448	5.47	.21688	35.8	.01589	16.9	.08410
1.180	0.14781	5.47	0.21703	35.8	9.01607	16.9	0.08393
.180	.14926	5.47	.21739	35.8	.01621	16.9	.08376
.181	.15071	5.46	.21775	35.8	.01631	16.8	.08359
.182	.15216	5.46	.21811	35.8	.01658	16.8	.08342
.183	.15361	5.46	.21817	35.9	.01674	16.8	.08325
1.175	0.14694	5.46	0.21883	35.0	9.01607	16.7	0.08308
.175	.14839	5.46	.21909	35.0	.01628	16.7	.08291
.176	.14984	5.45	.21951	35.0	.01641	16.7	.08274
.177	.15129	5.45	.21990	35.0	.01651	16.6	.08257
.178	.15274	5.45	.22026	35.0	.01671	16.6	.08240
.179	.15419	5.45	.22058	35.0	.01685	16.6	.08223
1.170	0.14626	5.45	0.22063	35.0	9.01771	16.6	0.08206
.170	.14771	5.45	.22094	35.0	.01790	16.5	.08189
.171	.14916	5.44	.22131	35.0	.01807	16.5	.08172
.172	.15061	5.44	.22170	35.0	.01824	16.4	.08155
.173	.15206	5.44	.22200	35.0	.01839	16.4	.08138
1.165	0.14559	5.44	0.22241	35.0	9.01857	16.4	0.08121
.165	.14704	5.44	.22278	35.0	.01873	16.3	.08104
.166	.14849	5.43	.22311	35.0	.01889	16.3	.08087
.167	.14994	5.43	.22359	35.0	.01906	16.3	.08070
.168	.15139	5.43	.22385	35.1	.01922	16.2	.08053
1.160	0.14490	5.43	0.22512	36.1	9.01938	16.2	0.08036
.160	.14635	5.43	.22548	36.1	.01954	16.2	.08019
.161	.14780	5.42	.22591	36.1	.01970	16.2	.08002
.162	.14925	5.42	.22630	36.1	.01987	16.1	.07985
.163	.15070	5.42	.22677	36.1	.02003	16.1	.07968
1.155	0.14401	5.42	0.22803	36.1	9.02009	16.1	0.07951
.155	.14546	5.42	.22839	36.1	.02035	16.0	.07934
.156	.14691	5.42	.22875	36.2	.02051	16.0	.07917
.157	.14836	5.41	.22911	36.2	.02067	16.0	.07900
.158	.14981	5.41	.22947	36.2	.02083	15.9	.07883
1.150	0.14382	5.41	0.22981	36.2	9.02099	15.9	0.07866
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

BRITISH STANDARD TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.200	0.17884	51.1	0.25781	36.2	9.02693	15.9	0.07791
.201	.17931	51.1	.25820	36.2	.02714	15.9	.07786
.202	.17978	51.1	.25859	36.2	.02730	15.9	.07780
.203	.18025	51.0	.25898	36.2	.02746	15.8	.07774
.204	.18070	51.0	.25930	36.3	.02761	15.8	.07768
1.205	0.18112	51.0	0.25965	36.3	9.02778	15.7	0.07762
.206	.18154	51.0	.26001	36.3	.02793	15.7	.07757
.207	.18195	51.0	.26037	36.3	.02809	15.7	.07751
.208	.18238	51.0	.26074	36.3	.02823	15.6	.07745
.209	.18280	51.0	.26110	36.3	.02840	15.6	.07739
1.210	0.18322	51.0	0.26146	36.3	9.02856	15.6	0.07734
.211	.18364	51.0	.26183	36.3	.02871	15.5	.07729
.212	.18406	51.0	.26219	36.4	.02887	15.5	.07723
.213	.18448	51.0	.26255	36.4	.02902	15.5	.07718
.214	.18490	51.0	.26293	36.4	.02918	15.4	.07712
1.215	0.18530	51.0	0.26328	36.4	9.02933	15.4	0.07707
.216	.18573	51.0	.26365	36.4	.02949	15.4	.07701
.217	.18615	51.0	.26401	36.4	.02964	15.4	.07696
.218	.18657	51.0	.26437	36.4	.02979	15.3	.07691
.219	.18699	51.7	.26474	36.5	.02995	15.3	.07685
1.220	0.18740	51.7	0.26510	36.5	9.02910	15.3	0.07680
.221	.18782	51.7	.26547	36.5	.03025	15.2	.07675
.222	.18824	51.7	.26583	36.5	.03040	15.2	.07670
.223	.18865	51.7	.26620	36.5	.03056	15.2	.07664
.224	.18907	51.7	.26656	36.5	.03071	15.1	.07659
1.225	0.18947	51.6	0.26693	36.5	9.03085	15.1	0.07654
.226	.18989	51.6	.26729	36.5	.03101	15.1	.07649
.227	.19031	51.6	.26766	36.6	.03116	15.0	.07644
.228	.19073	51.6	.26802	36.6	.03131	15.0	.07639
.229	.19115	51.6	.26839	36.6	.03146	15.0	.07634
1.230	0.19157	51.5	0.26876	36.6	9.03161	15.0	0.07629
.231	.19198	51.5	.26912	36.6	.03176	14.9	.07624
.232	.19240	51.5	.26949	36.6	.03191	14.9	.07619
.233	.19281	51.5	.26985	36.6	.03206	14.9	.07614
.234	.19323	51.5	.27022	36.6	.03221	14.8	.07609
1.235	0.19364	51.5	0.27059	36.7	9.03235	14.8	0.07604
.236	.19406	51.4	.27095	36.7	.03250	14.8	.07599
.237	.19448	51.4	.27132	36.7	.03265	14.7	.07594
.238	.19489	51.4	.27169	36.7	.03280	14.7	.07589
.239	.19531	51.4	.27205	36.7	.03294	14.7	.07584
1.240	0.19573	51.4	0.27242	36.7	9.03309	14.7	0.07579
.241	.19615	51.4	.27279	36.7	.03324	14.6	.07574
.242	.19657	51.3	.27316	36.7	.03339	14.6	.07569
.243	.19698	51.3	.27352	36.8	.03353	14.6	.07564
.244	.19740	51.3	.27389	36.8	.03367	14.5	.07559
1.245	0.19781	51.3	0.27426	36.8	9.03382	14.5	0.07554
.246	.19823	51.3	.27463	36.8	.03396	14.5	.07549
.247	.19865	51.2	.27499	36.8	.03411	14.4	.07544
.248	.19907	51.2	.27536	36.8	.03425	14.4	.07539
.249	.19949	51.2	.27573	36.8	.03440	14.4	.07534
1.250	0.19991	51.2	0.27610	36.8	9.03454	14.4	0.07529
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
1.250	0.30164	51.2	0.27010	39.8	0.03154	14.1	0.07130
1.251	0.30151	51.2	0.27012	39.9	0.03158	14.1	0.07132
1.252	0.30138	51.2	0.27014	39.9	0.03162	14.1	0.07117
1.253	0.30125	51.1	0.27021	39.9	0.03166	14.1	0.07101
1.254	0.30112	51.1	0.27027	39.9	0.03170	14.2	0.07085
1.255	0.30099	51.1	0.27031	39.9	0.03175	14.2	0.07074
1.256	0.30087	51.1	0.27033	39.9	0.03179	14.2	0.07060
1.257	0.30074	51.1	0.27038	39.9	0.03183	14.2	0.07046
1.258	0.30061	51.1	0.27045	39.9	0.03188	14.1	0.07032
1.259	0.30048	51.0	0.27047	39.9	0.03192	14.1	0.07018
1.260	0.30035	51.0	0.27050	39.9	0.03196	14.1	0.07004
1.261	0.30023	51.0	0.27051	39.9	0.03199	14.0	0.06990
1.262	0.30010	51.0	0.27053	39.9	0.03203	14.0	0.06976
1.263	0.30000	51.0	0.27054	39.9	0.03206	14.0	0.06962
1.264	0.29987	51.0	0.27057	39.9	0.03210	14.0	0.06948
1.265	0.29974	50.9	0.27061	39.9	0.03215	14.0	0.06934
1.266	0.29961	50.9	0.27063	39.9	0.03219	14.0	0.06920
1.267	0.29948	50.9	0.27065	39.9	0.03223	14.0	0.06906
1.268	0.29935	50.9	0.27067	39.9	0.03227	14.0	0.06892
1.269	0.29922	50.9	0.27072	39.9	0.03232	14.0	0.06878
1.270	0.29909	50.9	0.27073	39.9	0.03235	14.0	0.06865
1.271	0.29896	50.9	0.27075	39.9	0.03239	14.0	0.06851
1.272	0.29883	50.8	0.27076	39.9	0.03243	14.0	0.06837
1.273	0.29870	50.8	0.27078	39.9	0.03247	14.0	0.06823
1.274	0.29857	50.8	0.27080	39.9	0.03251	14.0	0.06810
1.275	0.29844	50.8	0.27083	39.9	0.03256	14.0	0.06796
1.276	0.29831	50.8	0.27084	39.9	0.03259	14.0	0.06782
1.277	0.29818	50.8	0.27086	39.9	0.03263	14.0	0.06769
1.278	0.29805	50.7	0.27088	39.9	0.03267	14.0	0.06755
1.279	0.29792	50.7	0.27091	39.9	0.03271	14.0	0.06742
1.280	0.29779	50.7	0.27092	39.9	0.03274	14.0	0.06728
1.281	0.29766	50.7	0.27094	39.9	0.03278	14.0	0.06715
1.282	0.29753	50.7	0.27096	39.9	0.03282	14.0	0.06701
1.283	0.29740	50.6	0.27098	39.9	0.03286	14.0	0.06688
1.284	0.29727	50.6	0.27100	39.9	0.03290	14.0	0.06674
1.285	0.29714	50.6	0.27103	39.9	0.03295	14.0	0.06661
1.286	0.29701	50.6	0.27104	39.9	0.03298	14.0	0.06647
1.287	0.29688	50.6	0.27107	39.9	0.03303	14.0	0.06634
1.288	0.29675	50.6	0.27108	39.9	0.03307	14.0	0.06621
1.289	0.29662	50.6	0.27110	39.9	0.03311	14.0	0.06608
1.290	0.29649	50.6	0.27113	39.9	0.03316	14.0	0.06594
1.291	0.29636	50.5	0.27114	39.9	0.03319	14.0	0.06581
1.292	0.29623	50.5	0.27117	39.9	0.03324	14.0	0.06568
1.293	0.29610	50.5	0.27118	39.9	0.03327	14.0	0.06554
1.294	0.29597	50.5	0.27121	39.9	0.03332	14.0	0.06542
1.295	0.29584	50.5	0.27122	39.9	0.03336	14.0	0.06529
1.296	0.29571	50.5	0.27125	39.9	0.03341	14.0	0.06515
1.297	0.29558	50.4	0.27126	39.9	0.03345	14.0	0.06502
1.298	0.29545	50.4	0.27127	39.9	0.03349	14.0	0.06489
1.299	0.29532	50.4	0.27130	39.9	0.03354	14.0	0.06476
1.300	0.29519	50.4	0.27131	39.9	0.03357	14.0	0.06463
x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.300	0.23004	50.1	0.30497	37.4	9.93547	12.0	0.06403
1.301	0.23051	50.1	0.30504	37.4	9.93590	12.0	0.06450
1.302	0.23094	50.1	0.30512	37.4	9.93633	12.0	0.06497
1.303	0.23135	50.1	0.30520	37.5	9.93676	12.0	0.06544
1.304	0.23180	50.1	0.30527	37.5	9.93718	12.0	0.06591
1.305	0.23225	50.1	0.30534	37.5	9.93761	12.0	0.06638
1.306	0.23269	50.1	0.30542	37.5	9.93804	12.0	0.06685
1.307	0.23310	50.1	0.30550	37.5	9.93847	12.0	0.06732
1.308	0.23356	50.1	0.30557	37.5	9.93890	12.0	0.06779
1.309	0.23407	50.1	0.30564	37.5	9.93933	12.0	0.06826
1.310	0.23450	50.2	0.30571	37.5	9.93976	12.0	0.06873
1.311	0.23497	50.2	0.30579	37.5	9.94018	12.0	0.06920
1.312	0.23540	50.2	0.30587	37.5	9.94061	12.0	0.06967
1.313	0.23587	50.2	0.30594	37.6	9.94104	12.0	0.07014
1.314	0.23635	50.2	0.30602	37.6	9.94147	12.0	0.07061
1.315	0.23678	50.2	0.30610	37.6	9.94189	12.0	0.07108
1.316	0.23725	50.2	0.30617	37.6	9.94232	12.0	0.07155
1.317	0.23768	50.1	0.30625	37.6	9.94275	12.0	0.07202
1.318	0.23810	50.1	0.30632	37.6	9.94318	12.0	0.07249
1.319	0.23858	50.1	0.30640	37.6	9.94361	12.0	0.07296
1.320	0.23900	50.1	0.30647	37.6	9.94404	12.0	0.07343
1.321	0.23950	50.1	0.30655	37.7	9.94447	12.0	0.07390
1.322	0.23990	50.1	0.30663	37.7	9.94490	12.0	0.07437
1.323	0.24039	50.1	0.30670	37.7	9.94533	12.0	0.07484
1.324	0.24080	50.0	0.30678	37.7	9.94576	12.0	0.07531
1.325	0.24120	50.0	0.30686	37.7	9.94619	12.0	0.07578
1.326	0.24169	50.0	0.30694	37.7	9.94662	12.0	0.07625
1.327	0.24210	50.0	0.30701	37.7	9.94705	12.0	0.07672
1.328	0.24250	50.0	0.30709	37.7	9.94748	12.0	0.07719
1.329	0.24290	50.0	0.30717	37.7	9.94791	12.0	0.07766
1.330	0.24330	50.0	0.30724	37.8	9.94834	12.0	0.07813
1.331	0.24370	49.9	0.30732	37.8	9.94877	12.0	0.07860
1.332	0.24409	49.9	0.30740	37.8	9.94920	12.0	0.07907
1.333	0.24450	49.9	0.30748	37.8	9.94963	12.0	0.07954
1.334	0.24490	49.9	0.30756	37.8	9.95006	12.0	0.08001
1.335	0.24530	49.9	0.30763	37.8	9.95049	12.0	0.08048
1.336	0.24570	49.9	0.30771	37.8	9.95092	12.0	0.08095
1.337	0.24610	49.9	0.30779	37.8	9.95135	12.0	0.08142
1.338	0.24650	49.9	0.30787	37.8	9.95178	12.0	0.08189
1.339	0.24690	49.8	0.30795	37.8	9.95221	12.0	0.08236
1.340	0.24730	49.8	0.30802	37.9	9.95264	12.0	0.08283
1.341	0.24770	49.8	0.30810	37.9	9.95307	11.9	0.08330
1.342	0.24810	49.8	0.30818	37.9	9.95350	11.9	0.08377
1.343	0.24850	49.8	0.30826	37.9	9.95393	11.9	0.08424
1.344	0.24890	49.8	0.30834	37.9	9.95436	11.9	0.08471
1.345	0.24930	49.8	0.30842	37.9	9.95479	11.9	0.08518
1.346	0.24970	49.7	0.30850	37.9	9.95522	11.9	0.08565
1.347	0.25010	49.7	0.30858	37.9	9.95565	11.9	0.08612
1.348	0.25050	49.7	0.30866	37.9	9.95608	11.9	0.08659
1.349	0.25090	49.7	0.30874	37.9	9.95651	11.9	0.08706
1.350	0.25130	49.7	0.30882	38.0	9.95694	11.9	0.08753
1.351	0.25170	49.7	0.30890	38.0	9.95737	11.9	0.08800
1.352	0.25210	49.7	0.30898	38.0	9.95780	11.9	0.08847
1.353	0.25250	49.7	0.30906	38.0	9.95823	11.9	0.08894
1.354	0.25290	49.7	0.30914	38.0	9.95866	11.9	0.08941
1.355	0.25330	49.7	0.30922	38.0	9.95909	11.9	0.08988
1.356	0.25370	49.7	0.30930	38.0	9.95952	11.9	0.09035
1.357	0.25410	49.7	0.30938	38.0	9.95995	11.9	0.09082
1.358	0.25450	49.7	0.30946	38.0	9.96038	11.9	0.09129
1.359	0.25490	49.7	0.30954	38.0	9.96081	11.9	0.09176
1.360	0.25530	49.7	0.30962	38.0	9.96124	11.9	0.09223
1.361	0.25570	49.7	0.30970	38.0	9.96167	11.9	0.09270
1.362	0.25610	49.7	0.30978	38.0	9.96210	11.9	0.09317
1.363	0.25650	49.7	0.30986	38.0	9.96253	11.9	0.09364
1.364	0.25690	49.7	0.30994	38.0	9.96296	11.9	0.09411
1.365	0.25730	49.7	0.31002	38.0	9.96339	11.9	0.09458
1.366	0.25770	49.7	0.31010	38.0	9.96382	11.9	0.09505
1.367	0.25810	49.7	0.31018	38.0	9.96425	11.9	0.09552
1.368	0.25850	49.7	0.31026	38.0	9.96468	11.9	0.09599
1.369	0.25890	49.7	0.31034	38.0	9.96511	11.9	0.09646
1.370	0.25930	49.7	0.31042	38.0	9.96554	11.9	0.09693
1.371	0.25970	49.7	0.31050	38.0	9.96597	11.9	0.09740
1.372	0.26010	49.7	0.31058	38.0	9.96640	11.9	0.09787
1.373	0.26050	49.7	0.31066	38.0	9.96683	11.9	0.09834
1.374	0.26090	49.7	0.31074	38.0	9.96726	11.9	0.09881
1.375	0.26130	49.7	0.31082	38.0	9.96769	11.9	0.09928
1.376	0.26170	49.7	0.31090	38.0	9.96812	11.9	0.09975
1.377	0.26210	49.7	0.31098	38.0	9.96855	11.9	0.10022
1.378	0.26250	49.7	0.31106	38.0	9.96898	11.9	0.10069
1.379	0.26290	49.7	0.31114	38.0	9.96941	11.9	0.10116
1.380	0.26330	49.7	0.31122	38.0	9.96984	11.9	0.10163
1.381	0.26370	49.7	0.31130	38.0	9.97027	11.9	0.10210
1.382	0.26410	49.7	0.31138	38.0	9.97070	11.9	0.10257
1.383	0.26450	49.7	0.31146	38.0	9.97113	11.9	0.10304
1.384	0.26490	49.7	0.31154	38.0	9.97156	11.9	0.10351
1.385	0.26530	49.7	0.31162	38.0	9.97199	11.9	0.10398
1.386	0.26570	49.7	0.31170	38.0	9.97242	11.9	0.10445
1.387	0.26610	49.7	0.31178	38.0	9.97285	11.9	0.10492
1.388	0.26650	49.7	0.31186	38.0	9.97328	11.9	0.10539
1.389	0.26690	49.7	0.31194	38.0	9.97371	11.9	0.10586
1.390	0.26730	49.7	0.31202	38.0	9.97414	11.9	0.10633
1.391	0.26770	49.7	0.31210	38.0	9.97457	11.9	0.10680
1.392	0.26810	49.7	0.31218	38.0	9.97500	11.9	0.10727
1.393	0.26850	49.7	0.31226	38.0	9.97543	11.9	0.10774
1.394	0.26890	49.7	0.31234	38.0	9.97586	11.9	0.10821
1.395	0.26930	49.7	0.31242	38.0	9.97629	11.9	0.10868
1.396	0.26970	49.7	0.31250	38.0	9.97672	11.9	0.10915
1.397	0.27010	49.7	0.31258	38.0	9.97715	11.9	0.10962
1.398	0.27050	49.7	0.31266	38.0	9.97758	11.9	0.11009
1.399	0.27090	49.7	0.31274	38.0	9.97801	11.9	0.11056
1.400	0.27130	49.7	0.31282	38.0	9.97844	11.9	0.11103

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$	$= F_4'$
1.39	0.25918	-0.7	0.31352	38.0	-0.01154	11.7	0.01154	11.7
.391	.25955	-0.7	.31389	38.0	.01166	11.7	.01166	11.7
.392	.25991	-0.7	.31426	38.0	.01177	11.7	.01177	11.7
.393	.26028	-0.7	.31463	38.0	.01189	11.7	.01189	11.7
.394	.26064	-0.7	.31500	38.0	.01201	11.6	.01201	11.6
1.395	0.26101	-0.6	0.31537	38.0	0.01212	11.6	0.01212	11.6
.396	.26138	-0.6	.31574	38.0	.01224	11.6	.01224	11.6
.397	.26174	-0.6	.31611	38.0	.01235	11.6	.01235	11.6
.398	.26211	-0.6	.31648	38.0	.01247	11.5	.01247	11.5
.399	.26247	-0.6	.31685	38.1	.01258	11.5	.01258	11.5
1.399	0.26284	-0.5	0.31722	38.1	0.01270	11.5	0.01270	11.5
.400	.26321	-0.5	.31759	38.1	.01281	11.5	.01281	11.5
.401	.26357	-0.5	.31796	38.1	.01293	11.4	.01293	11.4
.402	.26394	-0.5	.31833	38.1	.01304	11.4	.01304	11.4
.403	.26430	-0.5	.31870	38.1	.01316	11.4	.01316	11.4
1.404	0.26467	-0.4	0.31907	38.1	0.01327	11.4	0.01327	11.4
.405	.26503	-0.4	.31944	38.1	.01338	11.4	.01338	11.4
.406	.26540	-0.4	.31981	38.1	.01350	11.3	.01350	11.3
.407	.26576	-0.4	.32018	38.1	.01361	11.3	.01361	11.3
.408	.26613	-0.4	.32055	38.2	.01372	11.3	.01372	11.3
1.409	0.26650	-0.3	0.32092	38.2	0.01383	11.3	0.01383	11.3
.410	.26686	-0.3	.32129	38.2	.01395	11.2	.01395	11.2
.411	.26723	-0.3	.32166	38.2	.01406	11.2	.01406	11.2
.412	.26759	-0.3	.32203	38.2	.01417	11.2	.01417	11.2
.413	.26796	-0.3	.32240	38.2	.01429	11.2	.01429	11.2
1.414	0.26832	-0.2	0.32277	38.2	0.01440	11.2	0.01440	11.2
.415	.26869	-0.2	.32314	38.2	.01451	11.1	.01451	11.1
.416	.26905	-0.2	.32351	38.2	.01462	11.1	.01462	11.1
.417	.26942	-0.2	.32388	38.2	.01473	11.1	.01473	11.1
.418	.26978	-0.2	.32425	38.2	.01484	11.1	.01484	11.1
1.419	0.27015	-0.1	0.32462	38.3	0.01495	11.0	0.01495	11.0
.420	.27051	-0.1	.32499	38.3	.01506	11.0	.01506	11.0
.421	.27088	-0.1	.32536	38.3	.01517	11.0	.01517	11.0
.422	.27124	-0.1	.32573	38.3	.01528	11.0	.01528	11.0
.423	.27161	-0.1	.32610	38.3	.01539	11.0	.01539	11.0
1.424	0.27197	-0.0	0.32647	38.3	0.01550	10.9	0.01550	10.9
.425	.27234	-0.0	.32684	38.3	.01561	10.9	.01561	10.9
.426	.27270	-0.0	.32721	38.3	.01572	10.9	.01572	10.9
.427	.27307	-0.0	.32758	38.3	.01583	10.9	.01583	10.9
.428	.27343	-0.0	.32795	38.3	.01594	10.8	.01594	10.8
1.429	0.27380	-0.0	0.32832	38.4	0.01605	10.8	0.01605	10.8
.430	.27416	-0.0	.32869	38.4	.01616	10.8	.01616	10.8
.431	.27453	-0.0	.32906	38.4	.01627	10.8	.01627	10.8
.432	.27489	-0.0	.32943	38.4	.01638	10.7	.01638	10.7
1.433	0.27526	-0.0	0.32980	38.4	0.01649	10.7	0.01649	10.7
.434	.27562	-0.0	.33017	38.4	.01660	10.7	.01660	10.7
.435	.27599	-0.0	.33054	38.4	.01671	10.6	.01671	10.6
.436	.27635	-0.0	.33091	38.4	.01682	10.6	.01682	10.6
.437	.27672	-0.0	.33128	38.4	.01693	10.6	.01693	10.6
.438	.27708	-0.0	.33165	38.4	.01704	10.5	.01704	10.5
1.439	0.27745	-0.0	0.33202	38.5	0.01715	10.5	0.01715	10.5
.440	.27781	-0.0	.33239	38.5	.01726	10.5	.01726	10.5
.441	.27818	-0.0	.33276	38.5	.01737	10.5	.01737	10.5
.442	.27854	-0.0	.33313	38.5	.01748	10.4	.01748	10.4
.443	.27891	-0.0	.33350	38.5	.01759	10.4	.01759	10.4
1.444	0.27927	-0.0	0.33387	38.5	0.01770	10.4	0.01770	10.4
.445	.27964	-0.0	.33424	38.5	.01781	10.3	.01781	10.3
.446	.27999	-0.0	.33461	38.5	.01792	10.3	.01792	10.3
.447	.28036	-0.0	.33498	38.5	.01803	10.3	.01803	10.3
.448	.28072	-0.0	.33535	38.5	.01814	10.2	.01814	10.2
1.449	0.28109	-0.0	0.33572	38.5	0.01825	10.2	0.01825	10.2
.450	.28145	-0.0	.33609	38.5	.01836	10.2	.01836	10.2
.451	.28182	-0.0	.33646	38.5	.01847	10.1	.01847	10.1
.452	.28218	-0.0	.33683	38.5	.01858	10.1	.01858	10.1
.453	.28255	-0.0	.33720	38.5	.01869	10.1	.01869	10.1
.454	.28291	-0.0	.33757	38.5	.01880	10.0	.01880	10.0
.455	.28328	-0.0	.33794	38.5	.01891	10.0	.01891	10.0
1.456	0.28364	-0.0	0.33831	38.5	0.01902	10.0	0.01902	10.0
.457	.28401	-0.0	.33868	38.5	.01913	10.0	.01913	10.0
.458	.28437	-0.0	.33905	38.5	.01924	9.9	.01924	9.9
.459	.28474	-0.0	.33942	38.5	.01935	9.9	.01935	9.9
1.460	0.28510	-0.0	0.33979	38.5	0.01946	9.9	0.01946	9.9
.461	.28547	-0.0	.34016	38.5	.01957	9.9	.01957	9.9
.462	.28583	-0.0	.34053	38.5	.01968	9.8	.01968	9.8
.463	.28620	-0.0	.34090	38.5	.01979	9.8	.01979	9.8
.464	.28656	-0.0	.34127	38.5	.01990	9.8	.01990	9.8
.465	.28693	-0.0	.34164	38.5	.02001	9.7	.02001	9.7
1.466	0.28729	-0.0	0.34201	38.5	0.02012	9.7	0.02012	9.7
.467	.28766	-0.0	.34238	38.5	.02023	9.7	.02023	9.7
.468	.28802	-0.0	.34275	38.5	.02034	9.6	.02034	9.6
.469	.28839	-0.0	.34312	38.5	.02045	9.6	.02045	9.6
.470	.28875	-0.0	.34349	38.5	.02056	9.6	.02056	9.6
1.471	0.28912	-0.0	0.34386	38.5	0.02067	9.6	0.02067	9.6
.472	.28948	-0.0	.34423	38.5	.02078	9.5	.02078	9.5
.473	.28985	-0.0	.34460	38.5	.02089	9.5	.02089	9.5
.474	.29021	-0.0	.34497	38.5	.02100	9.5	.02100	9.5
.475	.29058	-0.0	.34534	38.5	.02111	9.4	.02111	9.4
1.476	0.29094	-0.0	0.34571	38.5	0.02122	9.4	0.02122	9.4
.477	.29131	-0.0	.34608	38.5	.02133	9.4	.02133	9.4
.478	.29167	-0.0	.34645	38.5	.02144	9.3	.02144	9.3
.479	.29204	-0.0	.34682	38.5	.02155	9.3	.02155	9.3
1.480	0.29240	-0.0	0.34719	38.5	0.02166	9.3	0.02166	9.3
.481	.29277	-0.0	.34756	38.5	.02177	9.3	.02177	9.3
.482	.29313	-0.0	.34793	38.5	.02188	9.2	.02188	9.2
.483	.29350	-0.0	.34830	38.5	.02199	9.2	.02199	9.2
.484	.29386	-0.0	.34867	38.5	.02210	9.2	.02210	9.2
.485	.29423	-0.0	.34904	38.5	.02221	9.1	.02221	9.1
1.486	0.29459	-0.0	0.34941	38.5	0.02232	9.1	0.02232	9.1
.487	.29496	-0.0	.34978	38.5	.02243	9.1	.02243	9.1
.488	.29532	-0.0	.35015	38.5	.02254	9.0	.02254	9.0
.489	.29569	-0.0	.35052	38.5	.02265	9.0	.02265	9.0
.490	.29605	-0.0	.35089	38.5	.02276	9.0	.02276	9.0
1.491	0.29642	-0.0	0.35126	38.5	0.02287	8.9	0.02287	8.9
.492	.29678	-0.0	.35163	38.5	.02298	8.9	.02298	8.9
.493	.29715	-0.0	.35200	38.5	.02309	8.9	.02309	8.9
.494	.29751	-0.0	.35237	38.5	.02320	8.8	.02320	8.8
.495	.29788	-0.0	.35274	38.5	.02331	8.8	.02331	8.8
.496	.29824	-0.0	.35311	38.5	.02342	8.8	.02342	8.8
.497	.29861	-0.0	.35348	38.5	.02353	8.7	.02353	8.7
.498	.29897	-0.0	.35385	38.5	.02364	8.7	.02364	8.7
.499	.29934	-0.0	.35422	38.5	.02375	8.7	.02375	8.7
1.500	0.29970	-0.0	0.35459	38.5	0.02386	8.6	0.02386	8.6

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
1.400	0.27074	49.1	0.33662	38.5	0.94712	10.6	0.05288
1.401	.28023	49.0	.33690	38.5	.94722	10.6	.05278
1.402	.28072	49.0	.33719	38.5	.94733	10.6	.05269
1.403	.28121	49.0	.33777	38.5	.94743	10.5	.05257
1.404	.28170	49.0	.33810	38.5	.94754	10.5	.05246
1.405	.28219	49.0	.33844	38.5	.94764	10.5	.05236
1.406	.28258	49.0	.33891	38.5	.94775	10.5	.05225
1.407	.28317	49.0	.33931	38.5	.94785	10.5	.05215
1.408	.28366	49.0	.33970	38.5	.94795	10.4	.05204
1.409	.28415	48.9	.34008	38.5	.94806	10.4	.05194
1.410	.28464	48.9	.34047	38.5	.94817	10.4	.05183
1.411	.28512	48.9	.34086	38.6	.94827	10.4	.05173
1.412	.28561	48.9	.34124	38.6	.94837	10.3	.05163
1.413	.28610	48.9	.34163	38.6	.94848	10.3	.05152
1.414	.28659	48.9	.34201	38.6	.94858	10.3	.05142
1.415	.28708	48.9	.34240	38.6	.94868	10.3	.05132
1.416	.28757	48.9	.34278	38.6	.94879	10.3	.05121
1.417	.28806	48.9	.34317	38.6	.94889	10.2	.05111
1.418	.28855	48.8	.34356	38.6	.94899	10.2	.05101
1.419	.28903	48.8	.34394	38.6	.94909	10.2	.05091
1.420	.28952	48.8	.34433	38.6	.94919	10.2	.05081
1.421	.29001	48.8	.34471	38.6	.94930	10.2	.05070
1.422	.29050	48.8	.34510	38.7	.94940	10.1	.05060
1.423	.29099	48.8	.34549	38.7	.94950	10.1	.05050
1.424	.29147	48.8	.34587	38.7	.94960	10.1	.05040
1.425	.29196	48.8	.34626	38.7	.94970	10.1	.05030
1.426	.29245	48.8	.34665	38.7	.94980	10.1	.05020
1.427	.29294	48.7	.34704	38.7	.94990	10.0	.05010
1.428	.29343	48.7	.34743	38.7	.95000	10.0	.05000
1.429	.29391	48.7	.34781	38.7	.95010	10.0	.04990
1.430	.29440	48.7	.34820	38.7	.95020	10.0	.04980
1.431	.29489	48.7	.34858	38.7	.95030	10.0	.04970
1.432	.29537	48.7	.34897	38.7	.95040	9.9	.04960
1.433	.29586	48.7	.34936	38.8	.95050	9.9	.04950
1.434	.29635	48.7	.34975	38.8	.95060	9.9	.04940
1.435	.29683	48.7	.35013	38.8	.95070	9.9	.04930
1.436	.29732	48.6	.35052	38.8	.95080	9.9	.04920
1.437	.29781	48.6	.35091	38.8	.95090	9.8	.04910
1.438	.29830	48.6	.35130	38.8	.95100	9.8	.04900
1.439	.29878	48.6	.35169	38.8	.95110	9.8	.04890
1.440	.29926	48.6	.35207	38.8	.95120	9.8	.04881
1.441	.29975	48.6	.35246	38.8	.95130	9.8	.04871
1.442	.30024	48.6	.35285	38.8	.95140	9.7	.04861
1.443	.30072	48.6	.35324	38.8	.95148	9.7	.04852
1.444	.30121	48.6	.35363	38.8	.95158	9.7	.04842
1.445	.30169	48.5	.35402	38.9	.95168	9.7	.04832
1.446	.30218	48.5	.35440	38.9	.95177	9.7	.04823
1.447	.30266	48.5	.35479	38.9	.95187	9.6	.04813
1.448	.30315	48.5	.35518	38.9	.95197	9.6	.04803
1.449	.30363	48.5	.35557	38.9	.95206	9.6	.04794
1.450	.30412	48.5	.35596	38.9	.95216	9.6	.04784
u	log tan gd u	= F'	log sec gd u	= F'	log csc gd u	= F'	log cot gd u

SMITHSONIAN TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\sinh u$	$\log \cosh u$	$\cosh u$	$\log \tanh u$	$\tanh u$	$\log \coth u$
1.450	0.40112	48.5	0.45106	34.0	0.05216	9.0	0.01781
1.451	0.40140	48.5	0.45145	34.0	0.05225	9.0	0.01775
1.452	0.40169	48.5	0.45184	34.0	0.05235	9.0	0.01768
1.453	0.40197	48.5	0.45223	34.0	0.05245	9.0	0.01765
1.454	0.40226	48.4	0.45262	34.0	0.05254	9.0	0.01760
1.455	0.40254	48.4	0.45301	34.0	0.05264	9.0	0.01756
1.456	0.40283	48.4	0.45340	34.0	0.05273	9.0	0.01750
1.457	0.40311	48.4	0.45378	34.0	0.05283	9.0	0.01747
1.458	0.40340	48.4	0.45417	34.0	0.05292	9.0	0.01740
1.459	0.40368	48.4	0.45456	34.0	0.05301	9.0	0.01739
1.460	0.40396	48.4	0.45495	34.0	0.05311	9.0	0.01734
1.461	0.40425	48.4	0.45534	34.0	0.05320	9.0	0.01730
1.462	0.40453	48.4	0.45573	34.0	0.05330	9.0	0.01726
1.463	0.40482	48.4	0.45612	34.0	0.05339	9.0	0.01721
1.464	0.40510	48.4	0.45651	34.0	0.05348	9.0	0.01717
1.465	0.40539	48.4	0.45690	34.0	0.05358	9.0	0.01713
1.466	0.40567	48.4	0.45729	34.0	0.05367	9.0	0.01708
1.467	0.40596	48.4	0.45768	34.0	0.05376	9.0	0.01704
1.468	0.40624	48.4	0.45807	34.1	0.05385	9.0	0.01700
1.469	0.40653	48.4	0.45846	34.1	0.05395	9.0	0.01695
1.470	0.40681	48.4	0.45885	34.1	0.05404	9.0	0.01691
1.471	0.40710	48.3	0.45924	34.1	0.05413	9.0	0.01687
1.472	0.40738	48.3	0.45963	34.1	0.05422	9.0	0.01682
1.473	0.40767	48.3	0.46002	34.1	0.05431	9.0	0.01678
1.474	0.40795	48.3	0.46041	34.1	0.05440	9.0	0.01674
1.475	0.40824	48.3	0.46080	34.1	0.05449	9.0	0.01669
1.476	0.40852	48.3	0.46119	34.1	0.05458	9.0	0.01665
1.477	0.40881	48.3	0.46158	34.1	0.05467	9.0	0.01661
1.478	0.40909	48.3	0.46197	34.1	0.05476	9.0	0.01656
1.479	0.40938	48.3	0.46236	34.1	0.05485	9.0	0.01652
1.480	0.40966	48.3	0.46275	34.2	0.05494	9.0	0.01648
1.481	0.40995	48.3	0.46314	34.2	0.05503	9.0	0.01643
1.482	0.41023	48.3	0.46353	34.2	0.05512	9.0	0.01639
1.483	0.41052	48.3	0.46392	34.2	0.05521	9.0	0.01635
1.484	0.41080	48.3	0.46431	34.2	0.05530	9.0	0.01631
1.485	0.41109	48.3	0.46470	34.2	0.05539	9.0	0.01626
1.486	0.41137	48.3	0.46509	34.2	0.05548	9.0	0.01622
1.487	0.41166	48.3	0.46548	34.2	0.05557	9.0	0.01618
1.488	0.41194	48.3	0.46587	34.2	0.05566	9.0	0.01614
1.489	0.41223	48.3	0.46626	34.2	0.05575	9.0	0.01609
1.490	0.41251	48.3	0.46665	34.2	0.05584	9.0	0.01605
1.491	0.41280	48.3	0.46704	34.2	0.05593	9.0	0.01601
1.492	0.41308	48.3	0.46743	34.2	0.05602	9.0	0.01597
1.493	0.41337	48.3	0.46782	34.2	0.05611	9.0	0.01592
1.494	0.41365	48.3	0.46821	34.2	0.05620	9.0	0.01588
1.495	0.41394	48.3	0.46860	34.2	0.05629	9.0	0.01584
1.496	0.41422	48.3	0.46899	34.2	0.05638	9.0	0.01579
1.497	0.41451	48.3	0.46938	34.2	0.05647	9.0	0.01575
1.498	0.41479	48.3	0.46977	34.2	0.05656	9.0	0.01571
1.499	0.41508	48.3	0.47016	34.2	0.05665	9.0	0.01566
1.500	0.41536	48.3	0.47055	34.2	0.05674	9.0	0.01562
u	$\log \sinh u$	$\sinh u$	$\log \cosh u$	$\cosh u$	$\log \tanh u$	$\tanh u$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	log sinh u	= F ₁ '	log cosh u	= F ₂ '	log tanh u	= F ₃ '	log coth u
1.500	0.36823	48.0	0.37151	39.3	0.05672	8.7	0.04328
.501	.36871	48.0	.37191	39.3	.05681	8.7	.04319
.502	.36919	48.0	.37230	39.3	.05690	8.6	.04311
.503	.36967	48.0	.37269	39.3	.05698	8.6	.04302
.504	.37015	47.0	.37309	39.3	.05707	8.6	.04293
1.505	0.37063	47.0	0.37348	39.3	0.05715	8.6	0.04285
.506	.37111	47.0	.37387	39.4	.05724	8.6	.04276
.507	.37159	47.0	.37427	39.4	.05732	8.5	.04268
.508	.37207	47.0	.37466	39.4	.05741	8.5	.04259
.509	.37255	47.0	.37505	39.4	.05749	8.5	.04251
1.510	0.37303	47.0	0.37545	39.4	0.05758	8.5	0.04242
.511	.37350	47.0	.37584	39.4	.05766	8.5	.04234
.512	.37398	47.0	.37624	39.4	.05775	8.5	.04225
.513	.37446	47.0	.37663	39.4	.05783	8.4	.04217
.514	.37494	47.8	.37702	39.4	.05792	8.4	.04208
1.515	0.37542	47.8	0.37742	39.4	0.05800	8.4	0.04200
.516	.37590	47.8	.37781	39.4	.05808	8.4	.04192
.517	.37638	47.8	.37821	39.4	.05817	8.4	.04183
.518	.37686	47.8	.37860	39.4	.05825	8.4	.04175
.519	.37733	47.8	.37900	39.5	.05834	8.3	.04166
1.520	0.37781	47.8	0.37939	39.5	0.05842	8.3	0.04158
.521	.37829	47.8	.37979	39.5	.05850	8.3	.04150
.522	.37877	47.8	.38018	39.5	.05859	8.3	.04141
.523	.37924	47.8	.38057	39.5	.05867	8.3	.04133
.524	.37972	47.8	.38097	39.5	.05875	8.3	.04125
1.525	0.38020	47.7	0.38136	39.5	0.05883	8.2	0.04117
.526	.38068	47.7	.38176	39.5	.05892	8.2	.04108
.527	.38115	47.7	.38215	39.5	.05900	8.2	.04100
.528	.38163	47.7	.38255	39.5	.05908	8.2	.04092
.529	.38211	47.7	.38295	39.5	.05916	8.2	.04084
1.530	0.38258	47.7	0.38334	39.5	0.05924	8.2	0.04076
.531	.38306	47.7	.38374	39.5	.05933	8.1	.04067
.532	.38354	47.7	.38413	39.6	.05941	8.1	.04059
.533	.38402	47.7	.38453	39.6	.05949	8.1	.04051
.534	.38449	47.7	.38492	39.6	.05957	8.1	.04043
1.535	0.38497	47.7	0.38532	39.6	0.05966	8.1	0.04035
.536	.38545	47.6	.38571	39.6	.05973	8.1	.04027
.537	.38593	47.6	.38611	39.6	.05981	8.0	.04019
.538	.38640	47.6	.38661	39.6	.05989	8.0	.04011
.539	.38687	47.6	.38699	39.6	.05997	8.0	.04003
1.540	0.38735	47.6	0.38730	39.6	0.05995	8.0	0.03995
.541	.38783	47.6	.38769	39.6	.06013	8.0	.03987
.542	.38830	47.6	.38820	39.6	.06021	8.0	.03979
.543	.38878	47.6	.38846	39.6	.06029	8.0	.03971
.544	.38925	47.6	.38888	39.6	.06037	7.9	.03963
1.545	0.38973	47.6	0.38948	39.6	0.06045	7.9	0.03955
.546	.39021	47.6	.38968	39.7	.06053	7.9	.03947
.547	.39068	47.6	.39007	39.7	.06061	7.9	.03939
.548	.39116	47.5	.39047	39.7	.06069	7.9	.03931
.549	.39163	47.5	.39087	39.7	.06077	7.9	.03923
1.550	0.39211	47.5	0.39126	39.7	0.06084	7.8	0.03916
u	log tanh u	= F ₄ '	log coth u	= F ₅ '	log sinh u	= F ₆ '	log cosh u

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$
1.550	0.35211	47.5	0.39140	36.7	0.03929	7.8	0.03929
.551	.35238	47.5	.39169	36.7	.03952	7.8	.03952
.552	.35265	47.5	.39196	36.7	.03975	7.8	.03975
.553	.35293	47.5	.39225	36.7	.03998	7.8	.03998
.554	.35319	47.5	.39255	36.7	.04016	7.8	.04016
1.555	0.35148	47.5	0.39325	36.7	0.04023	7.8	0.03877
.559	.35190	47.5	.39365	36.7	.04031	7.8	.03890
.557	.35543	47.5	.39194	36.7	.04039	7.8	.03901
.558	.35591	47.5	.39141	36.7	.04047	7.8	.03953
.559	.35638	47.5	.39081	36.7	.04054	7.8	.03984
1.560	0.35685	47.4	0.39154	36.8	0.04062	7.8	0.03988
.561	.35731	47.4	.39191	36.8	.04070	7.7	.03990
.562	.35780	47.4	.39231	36.8	.04077	7.7	.03994
.563	.35828	47.4	.39271	36.8	.04085	7.6	.03995
.564	.35875	47.4	.39311	36.8	.04093	7.6	.03997
1.565	0.35933	47.4	0.39372	36.8	0.04099	7.6	0.03999
.566	.35979	47.4	.39404	36.8	.04106	7.6	.03999
.567	.36017	47.4	.39436	36.8	.04113	7.6	.03999
.568	.36055	47.4	.39468	36.8	.04121	7.6	.03997
.569	.36092	47.4	.39500	36.8	.04128	7.5	.03999
1.570	0.36150	47.4	0.39561	36.8	0.04134	7.5	0.03999
.571	.36187	47.4	.39593	36.8	.04141	7.5	.03999
.572	.36224	47.3	.39625	36.8	.04148	7.5	.03997
.573	.36261	47.3	.39657	36.8	.04155	7.5	.03999
.574	.36298	47.3	.39689	36.9	.04162	7.5	.03999
1.575	0.36356	47.3	0.39751	36.9	0.04168	7.5	0.03999
.576	.36393	47.3	.39783	36.9	.04175	7.4	.03999
.577	.36430	47.3	.39815	36.9	.04182	7.4	.03999
.578	.36467	47.3	.39847	36.9	.04189	7.4	.03999
.579	.36504	47.3	.39879	36.9	.04196	7.4	.03999
1.580	0.36562	47.3	0.39941	36.9	0.04202	7.4	0.03999
.581	.36599	47.3	.39973	36.9	.04209	7.4	.03999
.582	.36636	47.3	.40005	36.9	.04216	7.4	.03999
.583	.36673	47.3	.40037	36.9	.04223	7.3	.03999
.584	.36710	47.2	.40069	36.9	.04230	7.3	.03999
1.585	0.36768	47.2	0.40131	36.9	0.04236	7.3	0.03999
.586	.36805	47.2	.40163	36.9	.04243	7.3	.03999
.587	.36842	47.2	.40195	36.9	.04250	7.3	.03999
.588	.36879	47.2	.40227	36.9	.04257	7.3	.03999
.589	.36916	47.2	.40259	40.0	.04264	7.3	.03999
1.590	0.36974	47.2	0.40321	40.0	0.04270	7.2	0.03999
.591	.37011	47.2	.40353	40.0	.04277	7.2	.03999
.592	.37048	47.2	.40385	40.0	.04284	7.2	.03999
.593	.37085	47.2	.40417	40.0	.04291	7.2	.03999
.594	.37122	47.2	.40449	40.0	.04298	7.2	.03999
1.595	0.37180	47.2	0.40511	40.0	0.04304	7.2	0.03999
.596	.37217	47.2	.40543	40.0	.04311	7.2	.03999
.597	.37254	47.1	.40575	40.0	.04318	7.1	.03999
.598	.37291	47.1	.40607	40.0	.04325	7.1	.03999
.599	.37328	47.1	.40639	40.0	.04332	7.1	.03999
1.600	0.37386	47.1	0.40701	40.0	0.04338	7.1	0.03999
2	0.37577	47.1	0.41103	40.0	0.046157	7.1	0.03543
u	$\log \sinh u$	u/F'	$\log \cosh u$	u/F'	$\log \tanh u$	u/F'	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.600	0.37577	47.1	0.41110	49.0	0.03537	7.1	0.93543
.601	.37621		.41159		.03575		.93545
.602	.37661		.41209		.03612		.93547
.603	.37708		.41250		.03649		.93549
.604	.37745		.41290	49.1	.03685	7.0	.93551
1.605	0.37812	47.1	0.41340	49.1	0.03713	7.0	0.93597
.606	.37850		.41380		.03750		.93600
.607	.37886		.41420		.03787		.93603
.608	.37923		.41460		.03824		.93606
.609	.37961		.41500		.03861		.93609
1.610	0.38118	47.0	0.41530	49.1	0.03858	7.0	0.93712
.611	.38095		.41560		.03845	6.9	.93710
.612	.38142		.41600		.03882		.93718
.613	.38189		.41640		.03919		.93722
.614	.38235		.41680		.03955		.93725
1.615	0.38381	47.0	0.41720	49.1	0.03962	6.9	0.93818
.616	.38330		.41761		.03999		.93820
.617	.38377		.41801		.04036		.93823
.618	.38424		.41841		.04073	6.8	.93827
.619	.38471		.41881		.04109		.93830
1.620	0.38518	47.0	0.41921	49.2	0.04107	6.8	0.93913
.621	.38565		.41961		.04144		.93917
.622	.38612		.42001		.04180		.93920
.623	.38659	46.9	.42042		.04217		.93924
.624	.38705		.42082		.04253		.93927
1.625	0.38752	46.9	0.42122	49.2	0.04250	6.7	0.94020
.626	.38799		.42162		.04287		.94023
.627	.38846		.42202		.04324		.94026
.628	.38893		.42243		.04361		.94029
.629	.38940		.42283		.04397		.94031
1.630	0.38987	46.9	0.42323	49.2	0.04394	6.7	0.94116
.631	.39034		.42363		.04431		.94120
.632	.39081		.42403		.04467		.94123
.633	.39128		.42443		.04504	6.6	.94126
.634	.39175		.42483		.04540		.94129
1.635	0.39221	46.9	0.42523	49.2	0.04537	6.6	0.94213
.636	.39268		.42563	49.3	.04573		.94216
.637	.39315	46.8	.42603		.04610		.94219
.638	.39362		.42643		.04647		.94221
.639	.39409		.42683		.04683		.94224
1.640	0.39456	46.8	0.42723	49.3	0.04679	6.5	0.94310
.641	.39502		.42763		.04717		.94313
.642	.39549		.42803		.04753		.94316
.643	.39595		.42843		.04790		.94319
.644	.39643		.42883		.04826		.94321
1.645	0.39690	46.8	0.42927	49.3	0.04823	6.5	0.94417
.646	.39736		.42967		.04860		.94421
.647	.39783		.43008		.04897		.94424
.648	.39830		.43048		.04933	6.4	.94427
.649	.39877		.43088		.04970		.94429
1.650	0.39924	46.8	0.43129	49.3	0.04967	6.4	0.94515
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\approx F_1'$	$\log \cosh u$	$\approx F_2'$	$\log \tanh u$	$\approx F_3'$	$\log \coth u$
1.650	0.30923	$\bar{4}5.1$	0.43429	$\bar{4}0.1$	9.97995	$\bar{6}.1$	0.01915
.651	.30970	$\bar{4}5.2$	.43469		.97881		.01909
.652	.31017		.43509	$\bar{4}0.4$	.97868		.01902
.653	.31064		.43550		.97854		.01895
.654	.31110		.43589		.97840		.01889
1.655	0.31157	$\bar{4}5.2$	0.43630	$\bar{4}0.4$	9.97827	$\bar{6}.1$	0.01873
.656	.31204		.43671		.97813	$\bar{6}.3$	.01867
.657	.31251		.43711		.97800		.01860
.658	.31297		.43751		.97786		.01854
.659	.31344		.43792		.97772		.01848
1.660	0.31391	$\bar{4}5.2$	0.43833	$\bar{4}0.4$	9.97758	$\bar{6}.3$	0.01832
.661	.31437		.43873		.97745		.01825
.662	.31484		.43913		.97731		.01819
.663	.31531		.43953		.97717		.01812
.664	.31577		.43994		.97703	$\bar{6}.2$	.01807
1.665	0.31624	$\bar{4}5.2$	0.44034	$\bar{4}0.4$	9.97689	$\bar{6}.2$	0.01791
.666	.31671	$\bar{4}5.5$	.44075		.97676		.01784
.667	.31717		.44115		.97662		.01778
.668	.31764		.44156		.97648		.01771
.669	.31811		.44196	$\bar{4}0.5$	.97635		.01765
1.670	0.31857	$\bar{4}5.5$	0.44237	$\bar{4}0.5$	9.97621	$\bar{6}.2$	0.01749
.671	.31904		.44277		.97607		.01742
.672	.31950		.44317		.97593	$\bar{6}.1$	.01737
.673	.31997		.44358		.97579		.01730
.674	.40014		.44398		.97565		.01724
1.675	0.41030	$\bar{4}5.6$	0.44439	$\bar{4}0.5$	9.97551	$\bar{6}.1$	0.01708
.676	.41117		.44479		.97537		.01701
.677	.41183		.44520		.97524		.01695
.678	.41230		.44560		.97510		.01688
.679	.41277		.44601		.97496		.01682
1.680	0.41323	$\bar{4}5.6$	0.44641	$\bar{4}0.5$	9.97482	$\bar{6}.0$	0.01666
.681	.41370	$\bar{4}5.5$	.44681		.97468		.01659
.682	.41416		.44722		.97454		.01653
.683	.41463		.44763		.97440		.01646
.684	.41509		.44803		.97426		.01640
1.685	0.41555	$\bar{4}5.5$	0.44844	$\bar{4}0.5$	9.97412	$\bar{6}.0$	0.01624
.686	.41602		.44885		.97398		.01617
.687	.41649		.44925	$\bar{4}0.6$	.97384		.01611
.688	.41695		.44966		.97370	$\bar{5}.0$	.01604
.689	.41742		.45006		.97356		.01598
1.690	0.41788	$\bar{4}5.5$	0.45047	$\bar{4}0.6$	9.97342	$\bar{5}.0$	0.01582
.691	.41835		.45088		.97328		.01575
.692	.41881		.45128		.97314		.01569
.693	.41928		.45169		.97300		.01562
.694	.41974		.45209		.97286		.01556
1.695	0.42021	$\bar{4}5.5$	0.45250	$\bar{4}0.6$	9.97271	$\bar{5}.0$	0.01540
.696	.42067		.45290		.97257		.01533
.697	.42114	$\bar{4}5.4$	.45331		.97243	$\bar{5}.8$	.01527
.698	.42161		.45372		.97229		.01520
.699	.42207		.45412		.97215		.01514
1.700	0.42253	$\bar{4}5.4$	0.45453	$\bar{4}0.6$	9.97200	$\bar{5}.8$	0.01500
u	$\log \tanh u$	$\approx F_1'$	$\log \coth u$	$\approx F_2'$	$\log \sinh u$	$\approx F_3'$	$\log \cosh u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$u \text{ } F_1'$	$\log \cosh u$	$u \text{ } F_2'$	$\log \tanh u$	$u \text{ } F_3'$	$\log \coth u$
1.700	0.44253	49.4	0.45353	49.6	0.07100	5.8	0.00000
701	.44269		.45361		.07105		.00001
702	.44285		.45369		.07110		.00002
703	.44302		.45377		.07115		.00003
704	.44319		.45385		.07120		.00004
1.705	0.44335	49.4	0.45393	49.7	0.07125	5.7	0.00005
706	.44351		.45400		.07130		.00006
707	.44368		.45407		.07135		.00007
708	.44384		.45415		.07140		.00008
709	.44401		.45422		.07145		.00009
1.710	0.44417	49.4	0.45430	49.7	0.07150	5.7	0.00012
711	.44433		.45437		.07155		.00013
712	.44450		.45444		.07160		.00014
713	.44466		.45451		.07165		.00015
714	.44483		.45458		.07170		.00016
1.715	0.44499	49.3	0.45466	49.7	0.07175	5.6	0.00019
716	.44515		.45473		.07180		.00020
717	.44531		.45480		.07185		.00021
718	.44548		.45487		.07190		.00022
719	.44564		.45494		.07195		.00023
1.720	0.44580	49.3	0.45502	49.7	0.07200	5.6	0.00026
721	.44596		.45509		.07205		.00027
722	.44612		.45516		.07210		.00028
723	.44629		.45523		.07215		.00029
724	.44645		.45530		.07220		.00030
1.725	0.44661	49.3	0.45538	49.8	0.07225	5.5	0.00033
726	.44677		.45545		.07230		.00034
727	.44693		.45552		.07235		.00035
728	.44710		.45559		.07240		.00036
729	.44726		.45566		.07245		.00037
1.730	0.44742	49.3	0.45574	49.8	0.07250	5.5	0.00040
731	.44758		.45581		.07255		.00041
732	.44774		.45588		.07260		.00042
733	.44790		.45595		.07265		.00043
734	.44806		.45602		.07270		.00044
1.735	0.44822	49.2	0.45610	49.8	0.07275	5.4	0.00047
736	.44838		.45617		.07280		.00048
737	.44854		.45624		.07285		.00049
738	.44870		.45631		.07290		.00050
739	.44886		.45638		.07295		.00051
1.740	0.44902	49.2	0.45646	49.8	0.07300	5.4	0.00054
741	.44918		.45653		.07305		.00055
742	.44934		.45660		.07310		.00056
743	.44950		.45667		.07315		.00057
744	.44966		.45674		.07320		.00058
1.745	0.44982	49.2	0.45682	49.9	0.07325	5.3	0.00061
746	.44998		.45689		.07330		.00062
747	.45014		.45696		.07335		.00063
748	.45030		.45703		.07340		.00064
749	.45046		.45710		.07345		.00065
1.750	0.45062	49.1	0.45718	49.9	0.07350	5.3	0.00068
u	$\log \sinh u$	$u \text{ } F_1'$	$\log \cosh u$	$u \text{ } F_2'$	$\log \tanh u$	$u \text{ } F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
1.750	0.41879	46.1	0.42701	46.9	9.97176	5.3	0.02521
.751	.41903		.42731		.97184	5.2	.02518
.752	.41926		.42762		.97192		.02515
.753	.41949		.42793		.97202		.02513
.754	.41973		.42824		.97212		.02510
1.755	0.41996	46.1	0.42855	46.9	9.97222	5.2	0.02508
.756	.42019		.42886		.97232		.02506
.757	.42043		.42917		.97242		.02503
.758	.42066		.42948		.97252		.02501
.759	.42090		.42979		.97262		.02498
1.760	0.42113	46.1	0.43010	46.9	9.97272	5.1	0.02496
.761	.42137		.43041		.97282		.02494
.762	.42160		.43072		.97292		.02491
.763	.42184		.43103		.97302		.02489
.764	.42207		.43134		.97312		.02486
1.765	0.42230	46.1	0.43165	46.9	9.97322	5.1	0.02484
.766	.42254		.43196		.97332		.02482
.767	.42277		.43227		.97342		.02479
.768	.42301		.43258		.97352		.02477
.769	.42324		.43289		.97362		.02474
1.770	0.42348	46.1	0.43320	46.9	9.97372	5.0	0.02472
.771	.42371		.43351		.97382		.02470
.772	.42395		.43382		.97392		.02467
.773	.42418		.43413		.97402		.02465
.774	.42442		.43444		.97412		.02462
1.775	0.42465	46.0	0.43475	46.9	9.97422	5.0	0.02460
.776	.42489		.43506		.97432		.02458
.777	.42512		.43537		.97442		.02455
.778	.42536		.43568		.97452		.02453
.779	.42559		.43599		.97462		.02450
1.780	0.42583	46.0	0.43630	46.9	9.97472	4.9	0.02448
.781	.42606		.43661		.97482		.02446
.782	.42630		.43692		.97492		.02443
.783	.42653		.43723		.97502		.02441
.784	.42677		.43754		.97512		.02438
1.785	0.42699	45.9	0.43785	46.1	9.97522	4.9	0.02436
.786	.42723		.43816		.97532		.02434
.787	.42746		.43847		.97542		.02431
.788	.42770		.43878		.97552		.02429
.789	.42793		.43909		.97562		.02426
1.790	0.42817	45.9	0.43940	46.1	9.97572	4.8	0.02424
.791	.42840		.43971		.97582		.02422
.792	.42864		.44002		.97592		.02419
.793	.42887		.44033		.97602		.02417
.794	.42911		.44064		.97612		.02414
1.795	0.42934	45.9	0.44095	46.1	9.97622	4.8	0.02412
.796	.42958		.44126		.97632		.02410
.797	.42981		.44157		.97642		.02407
.798	.43005		.44188		.97652		.02405
.799	.43028		.44219		.97662		.02402
1.800	0.43052	45.9	0.44250	46.1	9.97672	4.8	0.02400
u	log tanh u	= F'	log coth u	= F'	log tanh u	= F'	log coth u

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.800	0.46807	45.9	0.46841	41.1	0.00034	4.6	0.00034
.801	.46913		.46947		.00034	4.7	.00034
.802	.47019		.47053		.00034		.00034
.803	.47125		.47159		.00034		.00034
	.47231	45.8	.47265		.00034		.00034
1.805	0.47337	45.8	0.47371	41.1	0.00034	4.7	0.00034
.806	.47443		.47477		.00034		.00034
.807	.47549		.47583	41.2	.00034		.00034
.808	.47655		.47689		.00034		.00034
.809	.47761		.47795		.00034		.00034
1.810	0.47867	45.8	0.47901	41.2	0.00034	4.7	0.00034
.811	.47973		.48007		.00034	4.8	.00034
.812	.48079		.48113		.00034		.00034
.813	.48185		.48219		.00034		.00034
.814	.48291		.48325		.00034		.00034
1.815	0.48397	45.8	0.48431	41.2	0.00034	4.8	0.00034
.816	.48503		.48537		.00034		.00034
.817	.48609		.48643		.00034		.00034
.818	.48715		.48749		.00034		.00034
.819	.48821		.48855		.00034		.00034
1.820	0.48927	45.8	0.48961	41.2	0.00034	4.8	0.00034
.821	.49033		.49067		.00034		.00034
.822	.49139		.49173		.00034		.00034
.823	.49245		.49279		.00034		.00034
.824	.49351		.49385		.00034		.00034
1.825	0.49457	45.7	0.49491	41.2	0.00034	4.8	0.00034
.826	.49563		.49597		.00034		.00034
.827	.49669		.49703		.00034		.00034
.828	.49775		.49809		.00034		.00034
.829	.49881		.49915		.00034		.00034
1.830	0.49987	45.7	0.50021	41.3	0.00034	4.8	0.00034
.831	.50093		.50127		.00034		.00034
.832	.50200		.50234		.00034		.00034
.833	.50306		.50340		.00034		.00034
.834	.50412		.50446		.00034		.00034
1.835	0.50518	45.7	0.50552	41.3	0.00034	4.1	0.00034
.836	.50624		.50658		.00034		.00034
.837	.50730		.50764		.00034		.00034
.838	.50836		.50870		.00034		.00034
.839	.50942		.50976		.00034		.00034
1.840	0.51048	45.7	0.51082	41.3	0.00034	4.1	0.00034
.841	.51154		.51188		.00034		.00034
.842	.51260		.51294		.00034		.00034
.843	.51366		.51400		.00034		.00034
.844	.51472		.51506		.00034		.00034
1.845	0.51578	45.7	0.51612	41.3	0.00034	4.3	0.00034
.846	.51684		.51718		.00034		.00034
.847	.51790		.51824		.00034		.00034
.848	.51896		.51930		.00034		.00034
.849	.51992		.52026		.00034		.00034
1.850	0.52098	45.6	0.52132	41.3	0.00034	4.3	0.00034
.851	.52204		.52238		.00034		.00034
.852	.52310		.52344		.00034		.00034
.853	.52416		.52450		.00034		.00034
.854	.52522		.52556		.00034		.00034
1.855	0.52628	45.6	0.52662	41.3	0.00034	4.3	0.00034
.856	.52734		.52768		.00034		.00034
.857	.52840		.52874		.00034		.00034
.858	.52946		.52980		.00034		.00034
.859	.53052		.53086		.00034		.00034
1.860	0.53158	45.6	0.53192	41.3	0.00034	4.3	0.00034
.861	.53264		.53298		.00034		.00034
.862	.53370		.53404		.00034		.00034
.863	.53476		.53510		.00034		.00034
.864	.53582		.53616		.00034		.00034
1.865	0.53688	45.6	0.53722	41.3	0.00034	4.3	0.00034
.866	.53794		.53828		.00034		.00034
.867	.53900		.53934		.00034		.00034
.868	.54006		.54040		.00034		.00034
.869	.54112		.54146		.00034		.00034
1.870	0.54218	45.6	0.54252	41.3	0.00034	4.3	0.00034
.871	.54324		.54358		.00034		.00034
.872	.54430		.54464		.00034		.00034
.873	.54536		.54570		.00034		.00034
.874	.54642		.54676		.00034		.00034
1.875	0.54748	45.6	0.54782	41.3	0.00034	4.3	0.00034
.876	.54854		.54888		.00034		.00034
.877	.54960		.54994		.00034		.00034
.878	.55066		.55100		.00034		.00034
.879	.55172		.55206		.00034		.00034
1.880	0.55278	45.6	0.55312	41.3	0.00034	4.3	0.00034
.881	.55384		.55418		.00034		.00034
.882	.55490		.55524		.00034		.00034
.883	.55596		.55630		.00034		.00034
.884	.55702		.55736		.00034		.00034
1.885	0.55808	45.6	0.55842	41.3	0.00034	4.3	0.00034
.886	.55914		.55948		.00034		.00034
.887	.56020		.56054		.00034		.00034
.888	.56126		.56160		.00034		.00034
.889	.56232		.56266		.00034		.00034
1.890	0.56338	45.6	0.56372	41.3	0.00034	4.3	0.00034
.891	.56444		.56478		.00034		.00034
.892	.56550		.56584		.00034		.00034
.893	.56656		.56690		.00034		.00034
.894	.56762		.56796		.00034		.00034
1.895	0.56868	45.6	0.56902	41.3	0.00034	4.3	0.00034
.896	.56974		.57008		.00034		.00034
.897	.57080		.57114		.00034		.00034
.898	.57216		.57250		.00034		.00034
.899	.57352		.57386		.00034		.00034
1.900	0.57458	45.6	0.57492	41.3	0.00034	4.3	0.00034
.901	.57594		.57628		.00034		.00034
.902	.57730		.57764		.00034		.00034
.903	.57866		.57900		.00034		.00034
.904	.57992		.58026		.00034		.00034
1.905	0.58128	45.6	0.58162	41.3	0.00034	4.3	0.00034
.906	.58264		.58298		.00034		.00034
.907	.58400		.58434		.00034		.00034
.908	.58536		.58570		.00034		.00034
.909	.58672		.58706		.00034		.00034
1.910	0.58808	45.6	0.58842	41.3	0.00034	4.3	0.00034
.911	.58944		.58978		.00034		.00034
.912	.59080		.59114		.00034		.00034
.913	.59216		.59250		.00034		.00034
.914	.59352		.59386		.00034		.00034
1.915	0.59488	45.6	0.59522	41.3	0.00034	4.3	0.00034
.916	.59624		.59658		.00034		.00034
.917	.59760		.59794		.00034		.00034
.918	.59896		.59930		.00034		.00034
.919	.60032		.60066		.00034		.00034
1.920	0.60168	45.6	0.60202	41.3	0.00034	4.3	0.00034
.921	.60304		.60338		.00034		.00034
.922	.60440		.60474		.00034		.00034
.923	.60576		.60610		.00034		.00034
.924	.60712		.60746		.00034		.00034
1.925	0.60848	45.6	0.60882	41.3	0.00034	4.3	0.00034
.926	.61024		.61058		.00034		.00034
.927	.61160		.61194		.00034		.00034
.928	.61296		.61330		.00034		.00034
.929	.61432		.61466		.00034		.00034
1.930	0.61568	45.6	0.61602	41.3	0.00034	4.3	0.00034
.931	.61744		.61778		.00034		.00034
.932	.61880		.61914		.00034		.00034
.933	.62016		.62050		.00034		.00034
.934	.62152		.62186		.00034		.00034
1.935	0.62288	45.6	0.62322	41.3	0.00034	4.3	0.00034
.936	.62464		.62498		.00034		.00034
.937	.62600		.62634		.00034		.00034
.938	.62736		.62770		.00034		.00034
.939	.62872		.62906		.00034		.00034
1.940	0.63008	45.6	0.63042	41.3	0.00034	4.3	0.00034
.941	.63184		.63218		.00034		.00034
.942	.63320		.63354		.00034		.00034
.943	.63456		.63490		.00034		.00034
.944	.63592		.63626		.00034		.00034
1.945	0.63728	45.6	0.63762	41.3	0.00034	4.3	0.00034
.946	.63904		.63938		.00034		.00034
.947	.64040		.64074		.00034		.00034
.948	.64176		.64210		.00034		.00034
.949	.64312		.64346		.00034		.00034
1.950	0.64448	45.6	0.64482	41.3	0.00034	4.3	0.00034
.951	.64624		.64658		.00034		.00034
.952	.64760		.64794		.00034		.00034
.953	.64896		.64930		.00034		.00034
.954	.65032		.65066		.00034		.00034
1.955	0.65168	45.6	0.65202	41.3	0.00034	4.3	0.00034
.956	.65344		.65378		.00034		.00034
.957	.65480		.65514		.00034		.00034
.958	.65616		.65650		.00034		.00034
.959	.65752		.65786		.00034		.00034
1.960	0.65888	45.6	0.65922	41.3	0.00034	4.3	0.00034
.961	.66064		.66098		.00034		.00034
.962	.66200		.66234		.00034		.00034
.963	.66336		.66370		.00034		.00034
.964	.66472		.66506		.00034		.00034
1.965	0.66608	45.6	0.66642	41.3	0.00034	4.3	0.00034
.966	.66816		.66850		.00034		.00034
.967	.66952		.66986		.00034		.00034
.968	.67088		.67122		.00034		.00034
.969	.67224		.67258		.00034		.00034
1.970	0.67360	45.6	0.67394	41.3	0.00034	4.3	0.00034
.971	.67568		.67602		.00034		.00034

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.850	0.49154	45.6	0.51302	41.3	0.07852	4.3	0.02138
.851	.49200		.51343		.07856		.02134
.852	.49246		.51385		.07861		.02130
.853	.49291		.51425		.07865		.02125
.854	.49337		.51463	41.4	.07869		.02131
1.855	0.49382	45.6	0.51500	41.4	0.07873	4.3	0.02127
.856	.49428		.51539		.07878	4.2	.02122
.857	.49474		.51572		.07883		.02118
.858	.49519		.51613		.07886		.02114
.859	.49565		.51654		.07890		.02110
1.860	0.49610	45.6	0.51716	41.4	0.07895	4.2	0.02105
.861	.49656		.51757		.07899		.02101
.862	.49702		.51795		.07903		.02097
.863	.49747		.51830		.07907		.02093
.864	.49793		.51861		.07911		.02089
1.865	0.49838	45.6	0.51923	41.4	0.07916	4.2	0.02084
.866	.49884		.51964		.07920		.02080
.867	.49929		.52005		.07924		.02076
.868	.49975		.52047		.07928	4.1	.02072
.869	.50020	45.5	.52088		.07932		.02068
1.870	0.50065	45.5	0.52130	41.4	0.07936	4.1	0.02064
.871	.50112		.52171		.07940		.02060
.872	.50157		.52212		.07945		.02055
.873	.50203		.52254		.07949		.02051
.874	.50248		.52295		.07953		.02047
1.875	0.50294	45.5	0.52337	41.4	0.07957	4.1	0.02043
.876	.50339		.52378		.07961		.02039
.877	.50385		.52420		.07965		.02035
.878	.50430		.52461		.07969		.02031
.879	.50476		.52503		.07973		.02027
1.880	0.50521	45.5	0.52544	41.5	0.07977	4.0	0.02023
.881	.50567		.52585		.07981		.02019
.882	.50612		.52627		.07985		.02015
.883	.50658		.52668		.07989		.02011
.884	.50703		.52710		.07993		.02007
1.885	0.50749	45.5	0.52751	41.5	0.07997	4.0	0.02003
.886	.50794		.52793		.08001		.01999
.887	.50840		.52834		.08005		.01995
.888	.50885		.52876		.08009		.01991
.889	.50931		.52917		.08013		.01987
1.890	0.50976	45.5	0.52959	41.5	0.08017	4.0	0.01983
.891	.51021		.53000		.08021		.01979
.892	.51067	45.4	.53042		.08025		.01975
.893	.51112		.53083		.08029	3.9	.01971
.894	.51158		.53125		.08033		.01967
1.895	0.51203	45.4	0.53166	41.5	0.08037	3.9	0.01963
.896	.51249		.53208		.08041		.01959
.897	.51294		.53249		.08045		.01955
.898	.51340		.53291		.08049		.01951
.899	.51385		.53332		.08053		.01947
1.900	0.51430	45.4	0.53374	41.5	0.08057	3.9	0.01943
u	$\log \tan u$	$= F_1'$	$\log \sec u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.000	0.51130	45.4	0.53374	41.5	0.08057	1.0	0.00013
.001	.51170		.53315		.08000		.00030
.002	.51211		.53257		.07941		.00046
.003	.51252		.53198		.07883		.00062
.004	.51292		.53140		.07824		.00078
1.005	0.51637	45.1	0.53581	41.3	0.08490	1.2	0.00024
.005	.51703		.53503		.08431		.00040
.007	.51738		.53445		.08373		.00056
.008	.51794		.53386		.08314		.00072
.009	.51830		.53328		.08255		.00088
1.010	0.52181	45.4	0.53770	41.6	0.08905	1.4	0.00035
.011	.52230		.53711		.08846		.00051
.012	.52275		.53652		.08787		.00067
.013	.52320		.53594		.08728		.00083
.014	.52365		.53535		.08669		.00099
1.015	0.52711	45.4	0.53927	41.6	0.09114	1.6	0.00085
.015	.52757		.53868		.09055		.00101
.017	.52802	45.3	.53809		.08996		.00117
.018	.52847		.53750		.08937		.00133
.019	.52893		.53691		.08878		.00149
1.020	0.53238	45.3	0.54205	41.6	0.09413	1.7	0.00127
.021	.53283		.54146		.09354		.00143
.022	.53329		.54087		.09295		.00159
.023	.53374		.54028		.09236		.00175
.024	.53419		.53969		.09177		.00191
1.025	0.53765	45.3	0.54413	41.6	0.09615	1.7	0.00180
.025	.53810		.54354		.09556		.00196
.027	.53855		.54295		.09497		.00212
.028	.53900		.54236		.09438		.00228
.029	.53946		.54177		.09379		.00244
1.030	0.54291	45.3	0.54621	41.6	0.09810	1.7	0.00233
.031	.54336		.54562		.09751		.00249
.032	.54382		.54503		.09692		.00265
.033	.54427		.54444		.09633		.00281
.034	.54472		.54385		.09574		.00297
1.035	0.54818	45.3	0.54965	41.7	0.09998	1.9	0.00286
.035	.54863		.54906		.09939		.00302
.037	.54908		.54847		.09880		.00318
.038	.54953		.54788		.09821		.00334
.039	.54999		.54729		.09762		.00350
1.040	0.55344	45.3	0.55408	41.7	0.10196	1.9	0.00339
.041	.55389		.55349		.10137		.00355
.042	.55434		.55290		.10078		.00371
.043	.55479	45.2	.55231		.10019		.00387
.044	.55524		.55172		.09960		.00403
1.045	0.55870	45.2	0.55656	41.7	0.10402	1.9	0.00392
.045	.55915		.55597		.10343		.00408
.047	.55960		.55538		.10284		.00424
.048	.56005		.55479		.10225		.00440
.049	.56051		.55420		.10166		.00456
1.050	0.56396	45.2	0.55855	41.7	0.10602	1.9	0.00445
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

BRITISH TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
1.000 .051 .102 .151 .204	0.50900 .51712 .52507 .53284 .54047	45.2	0.55455 .55499 .55538 .55580 .55622	41.7	9.98312 .98315 .98319 .98322 .98326	3.5	0.01798 .01755 .01751 .01751 .01744
1.055 .090 .137 .188 .239	0.54602 .54668 .54713 .54758 .54803	45.2	0.55661 .55705 .55747 .55788 .55830	41.7	9.98259 .98261 .98266 .98269 .98271	3.5	0.01741 .01737 .01734 .01731 .01727
1.060 .101 .142 .183 .224	0.54118 .54191 .54239 .54284 .54329	45.2	0.55872 .55911 .55955 .55997 .56039	41.7	9.98276 .98280 .98283 .98287 .98290	3.4	0.01721 .01720 .01717 .01713 .01710
1.065 .106 .147 .188 .229	0.54371 .54419 .54465 .54510 .54555	45.2	0.56081 .56122 .56163 .56206 .56248	41.8	9.98291 .98297 .98300 .98304 .98307	3.4	0.01706 .01703 .01700 .01696 .01693
1.070 .111 .152 .193 .234	0.54600 .54645 .54690 .54736 .54781	45.2 45.1	0.56290 .56331 .56373 .56415 .56457	41.8	9.98311 .98314 .98317 .98321 .98324	3.4	0.01689 .01686 .01683 .01679 .01676
1.075 .116 .157 .198 .239	0.54816 .54871 .54916 .54961 .55005	45.1	0.56498 .56540 .56584 .56627 .56669	41.8	9.98327 .98331 .98334 .98337 .98341	3.3	0.01673 .01669 .01666 .01663 .01659
1.080 .117 .158 .199 .240	0.55031 .55097 .55142 .55187 .55232	45.1	0.56707 .56749 .56791 .56833 .56875	41.8	9.98341 .98347 .98351 .98354 .98357	3.3	0.01656 .01653 .01649 .01646 .01643
1.085 .118 .159 .200 .241	0.55277 .55322 .55367 .55412 .55457	45.1	0.56916 .56958 .57000 .57042 .57084	41.8	9.98360 .98364 .98367 .98370 .98374	3.3	0.01640 .01636 .01633 .01630 .01626
1.090 .119 .160 .201 .242	0.55602 .55647 .55691 .55736 .55781	45.1	0.57126 .57167 .57209 .57251 .57293	41.8	9.98377 .98380 .98383 .98387 .98390	3.2	0.01613 .01610 .01607 .01603 .01600
1.095 .120 .161 .202 .243	0.55728 .55774 .55818 .55861 .55905	45.1	0.57335 .57377 .57419 .57460 .57502	41.9	9.98393 .98396 .98399 .98403 .98406	3.2	0.01607 .01604 .01601 .01597 .01594
2.000	0.58983	45.0	0.57544	41.9	9.98409	3.2	0.01592
u	$\log \tanh u$	$= F_1'$	$\log \coth u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$u \text{ } F_2'$	$\log \cosh u$	$u \text{ } F_2'$	$\log \tanh u$	$u \text{ } F_2'$	$\log \coth u$
2.000	0.58053	45.0	0.57514	43.0	0.00539	3.0	0.00539
.001	.58058		.57519		.00541		.00540
.002	.58063		.57524		.00543		.00541
.003	.58068		.57529		.00545		.00542
.004	.58073		.57534		.00547		.00543
2.005	0.58178	45.0	0.57754	43.0	0.00645	3.0	0.00645
.005	.58183		.57759		.00647		.00642
.007	.58188		.57764		.00649		.00643
.008	.58193		.57769		.00651		.00646
.009	.58198		.57774		.00653		.00649
2.010	0.58303	45.0	0.57951	43.0	0.00749	3.0	0.00749
.011	.58308		.57956		.00751		.00750
.012	.58313		.57961		.00753		.00753
.013	.58318		.57966		.00755		.00756
.014	.58323		.57971		.00757		.00757
2.015	0.58668	45.0	0.58172	43.0	0.00845	3.0	0.00845
.016	.58673		.58177		.00847		.00841
.017	.58678		.58182		.00849		.00844
.018	.58683		.58187		.00851		.00846
.019	.58688		.58192		.00853		.00849
2.020	0.58863	45.0	0.58382	43.0	0.00941	3.0	0.00941
.021	.58868		.58387		.00943		.00940
.022	.58873		.58392		.00945		.00943
.023	.58878		.58397		.00947		.00946
.024	.58883		.58402		.00949		.00949
2.025	0.59068	45.0	0.58592	43.0	0.01047	3.0	0.01047
.026	.59073		.58597		.01049		.01040
.027	.59078		.58602		.01051		.01047
.028	.59083		.58607		.01053		.01050
.029	.59088		.58612		.01055		.01053
2.030	0.59293	45.0	0.58802	43.0	0.01145	3.0	0.01145
.031	.59298		.58807		.01147		.01145
.032	.59303		.58812		.01149		.01148
.033	.59308		.58817		.01151		.01150
.034	.59313		.58822		.01153		.01153
2.035	0.59568	44.0	0.59011	44.0	0.01247	3.0	0.01247
.036	.59573		.59016		.01249		.01241
.037	.59578		.59021		.01251		.01248
.038	.59583		.59026		.01253		.01250
.039	.59588		.59031		.01255		.01253
2.040	0.59773	44.0	0.59221	44.0	0.01341	2.0	0.01341
.041	.59778		.59226		.01343		.01340
.042	.59783		.59231		.01345		.01343
.043	.59788		.59236		.01347		.01346
.044	.59793		.59241		.01349		.01352
2.045	0.59977	44.0	0.59411	44.0	0.01435	2.0	0.01435
.046	.59982		.59416		.01437		.01431
.047	.59987		.59421		.01439		.01434
.048	.59992		.59426		.01441		.01438
.049	.59997		.59431		.01443		.01442
2.050	0.59802	44.0	0.59611	52.0	0.01530	2.0	0.01530
u	$\log \sinh u$	$u \text{ } F_2'$	$\log \cosh u$	$u \text{ } F_2'$	$\log \tanh u$	$u \text{ } F_2'$	$\log \coth u$

BRITISH STANDARD TABLES

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
2.050	0.58302	440	0.59511	420	0.58590	20	0.01180
.051	.58316		.59525		.58594		.01187
.052	.58331		.59539		.58598		.01194
.053	.58346		.59553		.58602		.01201
.054	.58361		.59567		.58606		.01208
2.055	0.58416	440	0.59651	420	0.58675	20	0.01225
.056	.58431		.59665		.58678	25	.01232
.057	.58446		.59679		.58682		.01240
.058	.58461		.59693		.58686		.01247
.059	.58476		.59707		.58690		.01254
2.060	0.58530	440	0.59801	420	0.58730	25	0.01271
.061	.58545		.59815		.58734		.01278
.062	.58560		.59829		.58738		.01285
.063	.58575		.59843		.58742		.01292
.064	.58590		.59857		.58746		.01299
2.065	0.58645	445	0.59941	421	0.58810	25	0.01316
.066	.58660		.59955		.58814		.01323
.067	.58675		.59969		.58818		.01330
.068	.58690		.59983		.58822		.01337
.069	.58705		.60000		.58826		.01344
2.070	0.59009	445	0.60182	421	0.59017	25	0.01361
.071	.59114		.60287		.59120		.01368
.072	.59189		.60366		.59192		.01375
.073	.59233		.60448		.59245		.01382
.074	.59278		.60530		.59288	27	.01389
2.075	0.59333	445	0.60602	421	0.59331	27	0.01406
.076	.59378		.60681		.59373		.01413
.077	.59413		.60777		.59410		.01420
.078	.59457		.60859		.59450		.01427
.079	.59502		.60940		.59492		.01434
2.080	0.59547	445	0.60993	421	0.59544	27	0.01451
.081	.59592		.61075		.59587		.01458
.082	.59637		.61157		.59630		.01465
.083	.59681		.61239		.59672		.01472
.084	.59726		.61321		.59715		.01479
2.085	0.59771	445	0.61383	421	0.59768	27	0.01496
.086	.59816		.61465		.59810		.01503
.087	.59861		.61547		.59853		.01510
.088	.59905		.61629		.59896		.01517
.089	.59950		.61712		.59938		.01524
2.090	0.59995	445	0.61774	421	0.59991	27	0.01541
.091	.60040		.61856		.60033		.01548
.092	.60085		.61938		.60076		.01555
.093	.60129		.62020		.60118		.01562
.094	.60174		.62102		.60162		.01569
2.095	0.60219	445	0.62165	421	0.60216	27	0.01586
.096	.60264		.62247		.60259		.01593
.097	.60308		.62329		.60302		.01600
.098	.60353		.62411		.60346		.01607
.099	.60398		.62493		.60389		.01614
2.100	0.60443	445	0.62556	421	0.60440	27	0.01631
x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
2.100	0.63343	44.8	0.61745	44.3	0.01597	2.0	0.01593
.101	.63357		.61757		.01600		.01596
.102	.63372		.61769	44.2	.01603		.01597
.103	.63387		.61781		.01606		.01598
.104	.63402		.61793		.01608		.01599
2.105	0.63666	44.7	0.61999	44.1	0.01670	2.0	0.01530
.106	.63711		.61998		.01713		.01577
.107	.63756		.62010		.01716		.01581
.108	.63801		.62023		.01718		.01582
.109	.63845		.62125		.01721		.01579
2.110	0.63890	44.7	0.62167	44.1	0.01723	2.0	0.01577
.111	.63935		.62200		.01726	2.5	.01574
.112	.63979		.62251		.01728		.01574
.113	.64024		.62203		.01731		.01569
.114	.64069		.62139		.01734		.01567
2.115	0.64114	44.7	0.62378	44.2	0.01739	2.5	0.01561
.116	.64158		.62430		.01738		.01562
.117	.64203		.62462		.01741		.01559
.118	.64238		.62501		.01744		.01557
.119	.64282		.62546		.01746		.01554
2.120	0.64337	44.7	0.62590	44.2	0.01748	2.5	0.01552
.121	.64382		.62641		.01751		.01549
.122	.64427		.62693		.01754		.01547
.123	.64471		.62715		.01756		.01544
.124	.64516		.62757		.01759		.01542
2.125	0.64561	44.7	0.62800	44.2	0.01761	2.5	0.01539
.126	.64605		.62842		.01764		.01537
.127	.64650		.62891		.01766		.01534
.128	.64695		.62930		.01768		.01532
.129	.64739		.62969		.01771		.01529
2.130	0.64784	44.7	0.63011	44.2	0.01773	2.5	0.01527
.131	.64829		.63053		.01776	2.4	.01524
.132	.64874		.63095		.01778		.01522
.133	.64918		.63137		.01781		.01519
.134	.64963		.63180		.01783		.01517
2.135	0.65007	44.7	0.63222	44.2	0.01785	2.4	0.01515
.136	.65052		.63264		.01788		.01512
.137	.65097		.63306		.01790		.01510
.138	.65141		.63349		.01793		.01507
.139	.65186		.63391		.01795		.01505
2.140	0.65231	44.6	0.63433	44.2	0.01798	2.4	0.01502
.141	.65275		.63475		.01800		.01500
.142	.65320		.63518		.01802		.01498
.143	.65365		.63560	44.1	.01805		.01495
.144	.65409		.63602		.01807		.01493
2.145	0.65454	44.6	0.63644	44.1	0.01810	2.4	0.01490
.146	.65498		.63687		.01812		.01488
.147	.65543		.63729		.01814		.01486
.148	.65588		.63771		.01817		.01484
.149	.65632		.63813		.01819		.01481
2.150	0.65677	44.6	0.63855	44.1	0.01821	2.4	0.01479
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
2.150	0.62677	44.6	0.63896	42.3	9.98212	2.4	0.01179
.151	.62722		.63948		.98224		.01176
.152	.62766		.63990		.98236	2.3	.01174
.153	.62811		.64032		.98248		.01172
.154	.62855		.64075		.98261		.01169
2.155	0.62900	44.6	0.64119	42.3	9.98273	2.3	0.01167
.156	.62945		.64160		.98285		.01165
.157	.62989		.64202		.98298		.01162
.158	.63034		.64244		.98310		.01160
.159	.63079		.64286		.98322		.01158
2.160	0.63123	44.6	0.64328	42.3	9.98334	2.3	0.01155
.161	.63168		.64370		.98347		.01153
.162	.63212		.64412		.98359		.01151
.163	.63257		.64454		.98372		.01148
.164	.63302		.64496		.98384		.01146
2.165	0.63346	44.6	0.64538	42.3	9.98396	2.3	0.01144
.166	.63391		.64580		.98409		.01141
.167	.63435		.64622		.98421		.01139
.168	.63480		.64664		.98434		.01137
.169	.63524		.64706		.98446		.01135
2.170	0.63569	44.6	0.64748	42.3	9.98458	2.3	0.01132
.171	.63614		.64790		.98471		.01130
.172	.63658		.64832		.98483		.01128
.173	.63703		.64874		.98496		.01126
.174	.63747		.64916		.98508	2.2	.01123
2.175	0.63792	44.6	0.64958	42.3	9.98520	2.2	0.01121
.176	.63836		.65000		.98533		.01119
.177	.63881		.65042		.98545		.01117
.178	.63926		.65084		.98558		.01114
.179	.63970		.65126		.98570		.01112
2.180	0.64015	44.6	0.65168	42.3	9.98582	2.2	0.01110
.181	.64059		.65210		.98595		.01108
.182	.64104	44.5	.65252		.98607		.01106
.183	.64148		.65294		.98620		.01103
.184	.64193				.98632		.01101
2.185	0.64237	44.5	0.65336	42.3	9.98644	2.2	0.01099
.186	.64282		.65378		.98657		.01097
.187	.64326		.65420	42.4	.98669		.01095
.188	.64371		.65462		.98682		.01092
.189	.64415		.65504		.98694		.01090
2.190	0.64460	44.5	0.65546	42.4	9.98707	2.2	0.01088
.191	.64505		.65588		.98719		.01086
.192	.64549		.65630		.98732		.01084
.193	.64594		.65672		.98744		.01081
.194	.64638		.65714		.98757		.01079
2.195	0.64683	44.5	0.65756	42.4	9.98769	2.2	0.01077
.196	.64727		.65798		.98782		.01075
.197	.64772		.65840		.98794	2.1	.01073
.198	.64816		.65882		.98807		.01071
.199	.64861		.65924		.98819		.01069
2.200	0.64905	44.5	0.65966	42.4	9.98832	2.1	0.01066
u	log tanh u	= F'	log coth u	= F'	log sinh u	= F'	log cosh u

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
2.200	0.64005	44.5	0.63972	44.4	9.01634	2.1	0.01660
.201	.64030		.64011		.01639		.01664
.202	.64054		.64039		.01643		.01668
.203	.64079		.64069		.01647		.01672
.204	.64103		.64111		.01651		.01676
2.205	0.64128	44.5	0.64081	44.4	9.01654	2.1	0.01679
.206	.64172		.64126		.01659		.01683
.207	.64217		.64168		.01663		.01687
.208	.64261		.64211		.01667		.01691
.209	.64306		.64253		.01671		.01695
2.210	0.64330	44.5	0.64306	44.4	9.01675	2.1	0.01698
.211	.64375		.64348		.01679		.01702
.212	.64419		.64380		.01683		.01706
.213	.64464		.64423		.01687		.01710
.214	.64508		.64465		.01691		.01714
2.215	0.64533	44.5	0.64508	44.4	9.01695	2.1	0.01717
.216	.64577		.64550		.01699		.01721
.217	.64621		.64594		.01703		.01725
.218	.64666		.64635		.01707		.01729
.219	.64710		.64677		.01711		.01733
2.220	0.64735	44.5	0.64720	44.4	9.01715	2.0	0.01736
.221	.64779		.64762		.01719		.01740
.222	.64823		.64805		.01723		.01744
.223	.64868		.64847		.01727		.01748
.224	.64912		.64889		.01731		.01752
2.225	0.64937	44.5	0.64932	44.4	9.01735	2.0	0.01755
.226	.64981		.64974		.01739		.01759
.227	.65025		.64997		.01743		.01763
.228	.65069	44.4	.65050		.01747		.01767
.229	.65113		.65095		.01751		.01771
2.230	0.65138	44.4	0.65121	44.4	9.01755	2.0	0.01774
.231	.65181		.65165		.01759		.01778
.232	.65225		.65209		.01763		.01782
.233	.65269		.65251		.01767		.01786
.234	.65313		.65294		.01771		.01790
2.235	0.65338	44.4	0.65325	44.4	9.01775	2.0	0.01793
.236	.65381		.65369		.01779		.01797
.237	.65425		.65411	44.5	.01783		.01801
.238	.65469		.65453		.01787		.01805
.239	.65513		.65495		.01791		.01809
2.240	0.65538	44.4	0.65528	44.5	9.01795	2.0	0.01812
.241	.65581		.65571		.01799		.01816
.242	.65625		.65611		.01803		.01820
.243	.65669		.65653		.01807		.01824
.244	.65713		.65695		.01811		.01828
2.245	0.65738	44.4	0.65728	44.5	9.01815	2.0	0.01831
.246	.65781		.65771		.01819		.01835
.247	.65825		.65811		.01823		.01839
.248	.65869		.65853		.01827		.01843
.249	.65913		.65895		.01831		.01847
2.250	0.65938	44.4	0.65931	42.5	9.01835	1.9	0.01850
x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	log sinh u	= F ₂ '	log cosh u	= F ₂ '	log tanh u	= F ₂ '	log coth u
2.450	0.67155	44.4	0.68013	44.5	0.00855	1.9	0.00855
.451	.67173		.68030		.00872		.00873
.452	.67191		.68048		.00889		.00890
.453	.67209		.68066		.00901		.00900
.454	.67226		.68083		.00913		.00915
2.455	0.67239	44.4	0.68095	44.5	0.00915	1.9	0.00925
.456	.67254		.68108		.00917		.00933
.457	.67269		.68120		.00918		.00952
.458	.67283		.68133		.00920		.00950
.459	.67298		.68145		.00922		.00948
2.460	0.67302	44.4	0.68158	44.5	0.00924	1.9	0.00946
.461	.67316		.68170		.00925		.00944
.462	.67330		.68183		.00928		.00942
.463	.67345		.68195		.00930		.00940
.464	.67359		.68208		.00932		.00938
2.465	0.67363	44.4	0.68220	44.5	0.00934	1.9	0.00936
.466	.67378		.68233		.00935		.00935
.467	.67391		.68245		.00937		.00933
.468	.67405		.68258		.00939		.00931
.469	.67419		.68270		.00941		.00929
2.470	0.68416	44.4	0.68413	44.5	0.00973	1.9	0.00927
.471	.68430		.68425		.00975		.00925
.472	.68445		.68438		.00977	1.8	.00923
.473	.68459		.68450		.00978		.00920
.474	.68473		.68463		.00980		.00920
2.475	0.68478	44.4	0.68476	44.5	0.00982	1.8	0.00918
.476	.68492		.68488		.00984		.00916
.477	.68506		.68499		.00986		.00914
.478	.68520		.68513		.00988		.00912
.479	.68534	44.3	.68526		.00989		.00911
2.480	0.68539	44.3	0.68538	44.5	0.00991	1.8	0.00909
.481	.68553		.68544		.00993		.00907
.482	.68567		.68553		.00995		.00905
.483	.68581		.68565		.00997		.00903
.484	.68595		.68578		.00998		.00902
2.485	0.68599	44.3	0.68581	44.5	0.00999	1.8	0.00900
.486	.68613		.68592		.00992		.00898
.487	.68627		.68604		.00994		.00896
.488	.68641		.68616		.00995		.00894
.489	.68655		.68628		.00997		.00893
2.490	0.68659	44.3	0.68630	44.5	0.00999	1.8	0.00891
.491	.68673		.68640		.00999		.00889
.492	.68687		.68651	42.6	.00999		.00887
.493	.68701		.68663		.00999		.00885
.494	.68715		.68674		.00999		.00884
2.495	0.68719	44.3	0.68676	42.6	0.00999	1.8	0.00882
.496	.68733		.68688		.00999		.00880
.497	.68747		.68699		.00999		.00878
.498	.68761		.68711		.00999		.00877
.499	.68775		.68722		.00999	1.7	.00875
2.500	0.68779	44.3	0.68729	42.6	0.00999	1.7	0.00873
u	log tanh u	= F ₂ '	log coth u	= F ₂ '	log sinh u	= F ₂ '	log cosh u

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \cosh u$
2.300	0.69346	44.3	0.70219	44.6	0.00872	1.7	0.00872
.301	.69350		.70222		.00139		.00871
.302	.69353		.70224		.00136		.00870
.303	.69356		.70227		.00133		.00868
.304	.69359		.70230		.00131		.00866
2.305	0.69368	44.3	0.70232	44.6	0.00130	1.7	0.00864
.306	.69372		.70235		.00127		.00863
.307	.69375		.70237		.00124		.00861
.308	.69378		.70239		.00121		.00859
.309	.69381		.70242		.00118		.00858
2.310	0.69389	44.3	0.70245	44.6	0.00117	1.7	0.00856
.311	.69393		.70247		.00114		.00855
.312	.69396		.70250		.00111		.00853
.313	.69399		.70252		.00108		.00851
.314	.69402		.70255		.00105		.00849
2.315	0.69410	44.3	0.70258	44.6	0.00103	1.7	0.00847
.316	.69413		.70260		.00101		.00845
.317	.69416		.70263		.00098		.00844
.318	.69419		.70265		.00095		.00842
.319	.69422		.70268		.00092		.00841
2.320	0.69431	44.3	0.70271	44.6	0.00091	1.7	0.00839
.321	.69434		.70273		.00088		.00837
.322	.69437		.70275		.00085		.00835
.323	.69440		.70278		.00082		.00834
.324	.69443		.70281		.00079		.00832
2.325	0.69451	44.3	0.70284	44.6	0.00078	1.7	0.00831
.326	.69454		.70286		.00075		.00829
.327	.69457		.70289		.00072		.00827
.328	.69460		.70291		.00069		.00825
.329	.69463		.70294		.00066		.00824
2.330	0.69472	44.3	0.70297	44.6	0.00065	1.6	0.00822
.331	.69475		.70299		.00062		.00820
.332	.69478		.70302		.00059		.00818
.333	.69481		.70305		.00056		.00816
.334	.69484		.70307		.00053		.00814
2.335	0.69493	44.3	0.70310	44.6	0.00052	1.6	0.00813
.336	.69496	44.2	.70313		.00049		.00811
.337	.69499		.70315		.00046		.00809
.338	.69502		.70318		.00043		.00807
.339	.69505		.70320		.00040		.00805
2.340	0.69514	44.2	0.70323	44.6	0.00039	1.6	0.00804
.341	.69517		.70325		.00036		.00802
.342	.69520		.70328		.00033		.00800
.343	.69523		.70331		.00030		.00798
.344	.69526		.70333		.00027		.00796
2.345	0.69535	44.2	0.70336	44.6	0.00026	1.6	0.00795
.346	.69538		.70338		.00023		.00793
.347	.69541		.70341		.00020		.00791
.348	.69544		.70343		.00017		.00789
.349	.69547		.70346		.00014		.00787
2.350	0.69556	44.2	0.70349	44.6	0.00013	1.6	0.00786
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
2.450	0.71539	44.7	0.72349	44.6	9.99210	1.0	0.00790
.451	.71641		.72452		.99212	.00788	
.452	.71648		.72458		.99213	.00787	
.453	.71652		.72467	44.7	.99215	.00785	
.454	.71749		.72580		.99216	.00781	
2.455	0.71781	44.7	0.72591	44.7	9.99218	1.0	0.00782
.456	.71805		.72605		.99219	.00781	
.457	.71809		.72608		.99221	.00779	
.458	.71813		.72611		.99223	.00777	
.459	.71857		.72733		.99224	.00776	
2.460	0.72012	44.7	0.72776	44.7	9.99226	1.0	0.00774
.461	.72039		.72839		.99227	.00773	
.462	.72040		.72840		.99229	.00771	
.463	.72131		.72931		.99230	.00770	
.464	.72178		.72947		.99232	.00768	
2.465	0.72213	44.7	0.72949	44.7	9.99233	1.0	0.00767
.466	.72257		.72953		.99235	.00765	
.467	.72311		.72975		.99236	.00764	
.468	.72358		.73117		.99238	.00762	
.469	.72399		.73140		.99239	.00761	
2.470	0.72444	44.7	0.73203	44.7	9.99241	1.0	0.00759
.471	.72468		.73215		.99242	.00758	
.472	.72452		.73288		.99244	.00756	
.473	.72506		.73331		.99245	.00755	
.474	.72520		.73373		.99247	.00753	
2.475	0.72565	44.7	0.73386	44.7	9.99249	1.0	0.00751
.476	.72590		.73459		.99250	.00750	
.477	.72583		.73504		.99252	.00748	
.478	.72597		.73511		.99253	.00747	
.479	.72611		.73557		.99254	.00746	
2.480	0.72685	44.7	0.73590	44.7	9.99256	1.0	0.00744
.481	.72700		.73674		.99257	.00743	
.482	.72703		.73715		.99259	.00741	
.483	.72708		.73758		.99260	.00740	
.484	.72762		.73800		.99262	.00738	
2.485	0.72805	44.7	0.73813	44.7	9.99263	1.0	0.00737
.486	.72815		.73896		.99265	.00735	
.487	.72819		.73928		.99266	.00734	
.488	.72829		.73971		.99268	.00732	
.489	.72883		.74014		.99269	.00731	
2.490	0.72927	44.7	0.74036	44.7	9.99271	1.0	0.00729
.491	.72937		.74060		.99272	.00728	
.492	.72946		.74112		.99274	.00726	
.493	.72950		.74185		.99275	.00725	
.494	.72994		.74227		.99277	.00723	
2.495	0.72958	44.7	0.74290	44.7	9.99278	1.0	0.00722
.496	.72962		.74313		.99279	.00721	
.497	.72966		.74355		.99281	.00719	
.498	.72980		.74398		.99282	.00718	
.499	.72985		.74441		.99284	.00716	
2.400	0.71769	44.7	0.71484	42.7	9.99285	1.4	0.00715
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\approx F'$	$\log \cosh u$	$\approx F'$	$\log \tanh u$	$\approx F'$	$\log \coth u$
2.400	0.74709	44.7	0.74884	44.7	0.00175	1.1	0.00175
.401	.74813	44.7	.74930		.00182		.00182
.402	.74917		.74990		.00188		.00188
.403	.75021		.75042		.00194		.00194
.404	.75125		.75155		.00200		.00200
2.405	0.75229	44.7	0.75397	44.7	0.00206	1.1	0.00206
.406	.75333		.75430		.00211		.00211
.407	.75437		.75473		.00217		.00217
.408	.75541		.75575		.00223		.00223
.409	.75645		.75688		.00229		.00229
2.410	0.75749	44.7	0.75911	44.7	0.00235	1.1	0.00235
.411	.75853		.75951		.00240		.00240
.412	.75957		.76005		.00246		.00246
.413	.76061		.76109		.00252		.00252
.414	.76165		.76212		.00258		.00258
2.415	0.76269	44.7	0.76425	44.7	0.00264	1.1	0.00264
.416	.76373		.76469		.00269		.00269
.417	.76477		.76520		.00275		.00275
.418	.76581		.76623		.00281		.00281
.419	.76685		.76726		.00287		.00287
2.420	0.76789	44.7	0.76938	44.7	0.00293	1.1	0.00293
.421	.76893		.76930		.00299		.00299
.422	.76997		.77031	44.8	.00305		.00305
.423	.77101		.77139		.00311		.00311
.424	.77205		.77239		.00317		.00317
2.425	0.77309	44.7	0.77552	44.8	0.00323	1.1	0.00323
.426	.77413		.77485		.00329		.00329
.427	.77517		.77598		.00335		.00335
.428	.77621		.77680		.00341		.00341
.429	.77725		.77741		.00347		.00347
2.430	0.77829	44.7	0.78061	44.8	0.00353	1.1	0.00353
.431	.77933		.77960		.00359		.00359
.432	.78037		.78061		.00365		.00365
.433	.78141		.78161		.00371		.00371
.434	.78245		.78267		.00377		.00377
2.435	0.78349	44.7	0.78583	44.8	0.00383	1.1	0.00383
.436	.78453		.78522		.00389		.00389
.437	.78557		.78615		.00395		.00395
.438	.78661		.78718		.00401		.00401
.439	.78765		.78815		.00407		.00407
2.440	0.78869	44.7	0.79094	44.8	0.00413	1.1	0.00413
.441	.78973		.79036		.00419		.00419
.442	.79077		.79130		.00425		.00425
.443	.79181		.79222		.00431		.00431
.444	.79285		.79325		.00437		.00437
2.445	0.79389	44.7	0.79607	44.8	0.00443	1.1	0.00443
.446	.79493		.79550		.00449		.00449
.447	.79597		.79641		.00455		.00455
.448	.79701		.79736		.00461		.00461
.449	.79805		.79839		.00467		.00467
2.450	0.79909	44.7	0.79921	44.8	0.00473	1.1	0.00473
u	$\log \sinh u$	$\approx F'$	$\log \cosh u$	$\approx F'$	$\log \tanh u$	$\approx F'$	$\log \coth u$

BRITISH TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$
2.350	0.79025	43.8	0.79021	42.8	0.00004	1.3	0.00007
2.351	79049		79043		00051		00046
2.352	79073		79067		00097		00091
2.353	79097		79091		00143		00137
2.354	79121		79115		00189		00182
2.355	0.79145	44.1	0.79141	42.8	0.00235	1.3	0.00230
2.356	79169		79163		00281		00275
2.357	79193		79187		00327		00321
2.358	79217		79211		00373		00367
2.359	79241		79235		00419		00413
2.360	0.79265	44.4	0.79261	42.8	0.00465	1.3	0.00460
2.361	79289		79283		00511		00505
2.362	79313		79307		00557		00551
2.363	79337		79331		00603		00597
2.364	79361		79355		00649		00643
2.365	0.79385	44.7	0.79381	42.8	0.00695	1.3	0.00690
2.366	79409		79403		00741		00735
2.367	79433		79427		00787		00781
2.368	79457		79451		00833		00827
2.369	79481		79475		00879		00873
2.370	0.79505	45.0	0.79501	42.8	0.00925	1.3	0.00920
2.371	79529		79523		00971		00965
2.372	79553		79547		01017		01011
2.373	79577		79571		01063		01057
2.374	79601		79595		01109		01103
2.375	0.79625	45.3	0.79621	42.8	0.01155	1.3	0.01150
2.376	79649		79643		01201		01195
2.377	79673		79667		01247		01241
2.378	79697		79691		01293		01287
2.379	79721		79715		01339		01333
2.380	0.79745	45.6	0.79741	42.8	0.01385	1.3	0.01380
2.381	79769		79763		01431		01425
2.382	79793		79787		01477		01471
2.383	79817		79811		01523		01517
2.384	79841		79835		01569		01563
2.385	0.79865	45.9	0.79861	42.8	0.01615	1.3	0.01610
2.386	79889		79883		01661		01655
2.387	79913		79907		01707		01701
2.388	79937		79931		01753		01747
2.389	79961		79955		01799		01793
2.390	0.79985	46.2	0.79981	42.8	0.01845	1.3	0.01840
2.391	80009		79999		01891		01885
2.392	80033		80027		01937		01931
2.393	80057		80051		01983		01977
2.394	80081		80075		02029		02023
2.395	0.80105	46.5	0.80101	42.8	0.02075	1.3	0.02070
2.396	80129		80123		02121		02115
2.397	80153		80147		02167		02161
2.398	80177		80171		02213		02207
2.399	80201		80195		02259		02253
2.400	0.80225	46.8	0.80221	42.8	0.02305	1.3	0.02300
2.401	80249		80243		02351		02345
2.402	80273		80267		02397		02391
2.403	80297		80291		02443		02437
2.404	80321		80315		02489		02483
2.405	0.80345	47.1	0.80341	42.8	0.02535	1.3	0.02530
2.406	80369		80363		02581		02575
2.407	80393		80387		02627		02621
2.408	80417		80411		02673		02667
2.409	80441		80435		02719		02713
2.410	0.80465	47.4	0.80461	42.8	0.02765	1.3	0.02760
2.411	80489		80483		02811		02805
2.412	80513		80507		02857		02851
2.413	80537		80531		02903		02897
2.414	80561		80555		02949		02943
2.415	0.80585	47.7	0.80581	42.8	0.02995	1.3	0.02990
2.416	80609		80603		03041		03035
2.417	80633		80627		03087		03081
2.418	80657		80651		03133		03127
2.419	80681		80675		03179		03173
2.420	0.80705	48.0	0.80701	42.8	0.03225	1.3	0.03220
2.421	80729		80723		03271		03265
2.422	80753		80747		03317		03311
2.423	80777		80771		03363		03357
2.424	80801		80795		03409		03403
2.425	0.80825	48.3	0.80821	42.8	0.03455	1.3	0.03450
2.426	80849		80843		03501		03495
2.427	80873		80867		03547		03541
2.428	80897		80891		03593		03587
2.429	80921		80915		03639		03633
2.430	0.80945	48.6	0.80941	42.8	0.03685	1.3	0.03680
2.431	80969		80963		03731		03725
2.432	80993		80987		03777		03771
2.433	81017		81011		03823		03817
2.434	81041		81035		03869		03863
2.435	0.81065	48.9	0.81061	42.8	0.03915	1.3	0.03910
2.436	81089		81083		03961		03955
2.437	81113		81107		04007		03999
2.438	81137		81131		04053		04047
2.439	81161		81155		04099		04093
2.440	81185		81179		04145		04139
2.441	0.81209	49.2	0.81205	42.8	0.04191	1.3	0.04186
2.442	81233		81227		04237		04231
2.443	81257		81251		04283		04277
2.444	81281		81275		04329		04323
2.445	81305		81299		04375		04369
2.446	0.81329	49.5	0.81325	42.8	0.04421	1.3	0.04416
2.447	81353		81347		04467		04461
2.448	81377		81371		04513		04507
2.449	81401		81395		04559		04553
2.450	81425		81419		04605		04599

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\omega F_2'$	$\log \cosh u$	$\omega F_2'$	$\log \tanh u$	$\omega F_2'$	$\log \coth u$
2.500	0.78177	440	0.78762	438	0.00445	1.2	0.00515
.501	.78181		.78805		.00446		.00514
.502	.78185		.78808	440	.00447		.00513
.503	.78189		.78811		.00448		.00512
.504	.78193		.78814		.00449		.00511
2.505	0.78197	440	0.78817	439	0.00451	1.2	0.00510
.506	.78199		.78819		.00452		.00508
.507	.78203		.78822		.00453		.00507
.508	.78206		.78825		.00454		.00506
.509	.78209		.78828		.00455	1.1	.00505
2.510	0.78213	440	0.78831	439	0.00456	1.1	0.00504
.511	.78216		.78834		.00457		.00503
.512	.78219		.78837		.00458		.00502
.513	.78222		.78840		.00459		.00501
.514	.78225		.78843		.00461		.00500
2.515	0.78229	440	0.78846	439	0.00462	1.1	0.00499
.516	.78232		.78849		.00463		.00498
.517	.78235		.78852		.00464		.00497
.518	.78238		.78855		.00465		.00496
.519	.78241		.78858		.00467		.00495
2.520	0.78245	440	0.78861	439	0.00468	1.1	0.00494
.521	.78248		.78864		.00469		.00493
.522	.78251		.78867		.00470		.00492
.523	.78254		.78870		.00471		.00491
.524	.78257		.78873		.00472		.00490
2.525	0.78261	440	0.78876	439	0.00473	1.1	0.00489
.526	.78264		.78879		.00474		.00488
.527	.78267		.78882		.00475		.00487
.528	.78270		.78885		.00476		.00486
.529	.78273		.78888		.00478		.00485
2.530	0.78277	440	0.78891	439	0.00479	1.1	0.00484
.531	.78280		.78894		.00480		.00483
.532	.78283		.78897		.00481		.00482
.533	.78286		.78900		.00482		.00481
.534	.78289		.78903		.00483		.00480
2.535	0.78293	440	0.78906	439	0.00484	1.1	0.00479
.536	.78296		.78909		.00485		.00478
.537	.78299		.78912		.00486		.00477
.538	.78302		.78915		.00487		.00476
.539	.78305		.78918		.00488		.00475
2.540	0.78309	440	0.78921	439	0.00489	1.1	0.00474
.541	.78312		.78924		.00490		.00473
.542	.78315		.78927		.00491		.00472
.543	.78318		.78930		.00492		.00471
.544	.78321		.78933		.00493		.00470
2.545	0.78325	440	0.78936	439	0.00494	1.1	0.00469
.546	.78328		.78939		.00495		.00468
.547	.78331		.78942		.00496		.00467
.548	.78334		.78945		.00497		.00466
.549	.78337		.78948		.00498		.00465
2.550	0.78341	440	0.78951	439	0.00499	1.1	0.00464
u	$\log \sinh u$	$\omega F_2'$	$\log \cosh u$	$\omega F_2'$	$\log \tanh u$	$\omega F_2'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithm of Hyperbolic Functions.

u	$\log \sinh u$	$\propto F_1'$	$\log \cosh u$	$\propto F_2'$	$\log \tanh u$	$\propto F_3'$	$\log \coth u$
2.550	0.80377	44.0	0.80366	44.0	0.00010	1.1	0.00530
.551	.80420		.80409		.000171		.00529
.552	.80464		.80452		.00023		.00527
.553	.80508		.80495		.000274		.00526
.554	.80552		.80538		.000315		.00524
2.555	0.80596	44.0	0.80584	44.0	0.000356	1.0	0.00524
.556	.80640		.80628		.000397		.00523
.557	.80684		.80671		.000438		.00522
.558	.80728		.80715		.000479		.00521
.559	.80772		.80758		.000520		.00520
2.560	0.80816	44.0	0.80803	44.0	0.000561	1.0	0.00519
.561	.80860		.80847		.000602		.00518
.562	.80904		.80891		.000643		.00517
.563	.80948		.80935		.000684		.00516
.564	.80992		.80978		.000725		.00515
2.565	0.81036	43.0	0.81023	43.0	0.000766	1.0	0.00514
.566	.81080		.81067		.000807		.00513
.567	.81124		.81110		.000848		.00512
.568	.81168		.81154		.000889		.00511
.569	.81212		.81198		.000930		.00510
2.570	0.81256	43.0	0.81243	43.0	0.000971	1.0	0.00509
.571	.81300		.81286		.001012		.00508
.572	.81344		.81330		.001053		.00507
.573	.81388		.81374		.001094		.00506
.574	.81432		.81418		.001135		.00505
2.575	0.81476	43.0	0.81463	43.0	0.001176	1.0	0.00504
.576	.81520		.81506		.001217		.00503
.577	.81564		.81550		.001258		.00502
.578	.81608		.81594		.001299		.00501
.579	.81652		.81638		.001340		.00500
2.580	0.81696	43.0	0.81683	43.0	0.001381	1.0	0.00499
.581	.81740		.81726		.001422		.00498
.582	.81784		.81770		.001463		.00497
.583	.81828		.81814		.001504		.00496
.584	.81872		.81858		.001545		.00495
2.585	0.81916	43.0	0.81903	43.0	0.001586	1.0	0.00494
.586	.81960		.81946		.001627		.00493
.587	.82004		.81990		.001668		.00492
.588	.82048		.82034		.001709		.00491
.589	.82092		.82078		.001750		.00490
2.590	0.82136	43.0	0.82123	43.0	0.001791	1.0	0.00489
.591	.82180		.82166		.001832		.00488
.592	.82224		.82210		.001873		.00487
.593	.82268		.82254		.001914		.00486
.594	.82312		.82298		.001955		.00485
2.595	0.82356	43.0	0.82343	43.0	0.001996	1.0	0.00484
.596	.82400		.82386		.002037		.00483
.597	.82444		.82430		.002078		.00482
.598	.82488		.82474		.002119		.00481
.599	.82532		.82518		.002160		.00480
2.600	0.82576	43.0	0.82563	43.0	0.002201	1.0	0.00479

Logarithms of Hyperbolic Functions.

x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$
2.600	0.81573	43.0	0.81652	43.0	0.00079	1.0	0.00170
.601	.81617		.81695		.00082		.00173
.602	.81661		.81739		.00085		.00177
.603	.81705		.81783		.00088		.00179
.604	.81749		.81827		.00091		.00183
2.605	0.81793	43.0	0.81867	43.0	0.00095	0.0	0.00171
.606	.81837		.81910		.00097		.00174
.607	.81881		.81953		.00099		.00177
.608	.81925		.81999		.00101		.00179
.609	.81968		.82040		.00103		.00181
2.610	0.82012	43.0	0.82085	43.0	0.00105	0.0	0.00179
.611	.82055		.82125		.00107		.00180
.612	.82100		.82168		.00109		.00183
.613	.82144		.82211		.00111		.00187
.614	.82188		.82254		.00113		.00190
2.615	0.82232	43.0	0.82307	43.0	0.00115	0.0	0.00185
.616	.82276		.82343		.00117		.00187
.617	.82320		.82386		.00119		.00190
.618	.82364		.82429		.00121		.00192
.619	.82407		.82470		.00123		.00194
2.620	0.82451	43.0	0.82525	43.0	0.00125	0.0	0.00190
.621	.82495		.82555		.00127		.00193
.622	.82539		.82598		.00129		.00196
.623	.82583		.82641		.00131		.00198
.624	.82627		.82684		.00133		.00200
2.625	0.82671	43.0	0.82747	43.0	0.00135	0.0	0.00195
.626	.82715		.82770		.00137		.00197
.627	.82759		.82813		.00139		.00200
.628	.82802		.82855		.00141		.00202
.629	.82846		.82898		.00143		.00204
2.630	0.82890	43.0	0.82965	43.0	0.00145	0.0	0.00198
.631	.82934		.82987		.00147		.00200
.632	.82978		.83030		.00149		.00203
.633	.83022		.83073		.00151		.00205
.634	.83066		.83116		.00153		.00207
2.635	0.83110	43.0	0.83185	43.0	0.00155	0.0	0.00202
.636	.83154		.83207		.00157		.00204
.637	.83197		.83249		.00159		.00207
.638	.83241		.83292		.00161		.00209
.639	.83285		.83335		.00163		.00211
2.640	0.83329	43.0	0.83403	43.0	0.00165	0.0	0.00206
.641	.83373		.83424		.00167		.00208
.642	.83417		.83467		.00169		.00211
.643	.83461		.83510		.00171		.00213
.644	.83505		.83553		.00173		.00215
2.645	0.83548	43.0	0.83622	43.0	0.00175	0.0	0.00210
.646	.83592		.83640		.00177		.00212
.647	.83636		.83683		.00179		.00215
.648	.83680		.83726		.00181		.00217
.649	.83724		.83769		.00183		.00219
2.650	0.83768	43.0	0.83841	43.0	0.00185	0.0	0.00214
x	$\log \sinh x$	$= F_1'$	$\log \cosh x$	$= F_2'$	$\log \tanh x$	$= F_3'$	$\log \coth x$

Logarithms of Hyperbolic Functions.

u	log sinh u	= F'	log cosh u	= F'	log tanh u	= F'	log coth u
2.690	0.83768	43.0	0.85201	43.0	9.99566	0.0	0.00334
.691	.83812		.85244		.99567		.00333
.692	.83855		.85287		.99568		.00332
.693	.83899		.85330		.99569		.00331
.694	.83943		.85373		.99570		.00330
2.695	0.83987	43.0	0.85416	43.0	9.99571	0.0	0.00329
.696	.84031		.85459		.99572		.00328
.697	.84075		.85502		.99573		.00327
.698	.84119		.85545		.99574		.00326
.699	.84162		.85588		.99575		.00325
2.700	0.84206	43.0	0.85631	43.0	9.99575	0.8	0.00324
.701	.84250		.85674		.99576		.00323
.702	.84294		.85717		.99577		.00322
.703	.84338		.85760		.99578		.00321
.704	.84382		.85803		.99578		.00320
2.705	0.84426	43.0	0.85846	43.0	9.99579	0.8	0.00319
.706	.84469		.85889		.99580		.00318
.707	.84513		.85932		.99581		.00317
.708	.84557	43.8	.85975		.99582		.00316
.709	.84601		.86018		.99583		.00315
2.710	0.84645	43.8	0.86061	43.0	9.99583	0.8	0.00314
.711	.84689		.86104		.99584		.00313
.712	.84733		.86147		.99585		.00312
.713	.84776		.86190		.99586		.00311
.714	.84820		.86233		.99587		.00310
2.715	0.84864	43.8	0.86276	43.0	9.99588	0.8	0.00309
.716	.84908		.86319		.99588		.00308
.717	.84952		.86363		.99589		.00307
.718	.84995		.86406		.99590		.00306
.719	.85039		.86449		.99591		.00305
2.720	0.85083	43.8	0.86492	43.0	9.99592	0.8	0.00304
.721	.85127		.86535		.99592		.00303
.722	.85171		.86578		.99593		.00302
.723	.85215		.86621		.99594		.00301
.724	.85259		.86664		.99595		.00300
2.725	0.85302	43.8	0.86707	43.0	9.99596	0.8	0.00299
.726	.85346		.86750		.99597		.00298
.727	.85390		.86793		.99597		.00297
.728	.85434		.86836		.99598		.00296
.729	.85478		.86879		.99599		.00295
2.730	0.85522	43.8	0.86922	43.0	9.99600	0.8	0.00294
.731	.85565		.86965		.99601		.00293
.732	.85609		.87008		.99601		.00292
.733	.85653		.87051		.99602		.00291
.734	.85697		.87094		.99603		.00290
2.735	0.85741	43.8	0.87137	43.0	9.99604	0.8	0.00289
.736	.85785		.87180		.99605		.00288
.737	.85828		.87223		.99605		.00287
.738	.85872		.87266		.99606		.00286
.739	.85916		.87309		.99607		.00285
2.740	0.85960	43.8	0.87352	43.0	9.99608	0.8	0.00284
u	log tan pt u	= F'	log sec pt u	= F'	log sin pt u	= F'	log cos pt u

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
2.700	0.86960	43.8	0.87152	43.9	0.00192	0.8	0.00192
.701	.87001		.87195		.00193		.00192
.702	.87042		.87236		.00194		.00193
.703	.87083		.87277		.00195		.00194
.704	.87125		.87318		.00196		.00195
2.705	0.87170	43.8	0.87360	43.9	0.00197	0.8	0.00195
.706	.87213		.87400		.00198		.00196
.707	.87257		.87441		.00199		.00197
.708	.87300		.87482		.00200		.00198
.709	.87354		.87523		.00201		.00199
2.710	0.87398	43.8	0.87564	43.9	0.00202	0.8	0.00199
.711	.87442		.87605		.00203		.00200
.712	.87486		.87646		.00204		.00201
.713	.87530		.87687		.00205		.00202
.714	.87573		.87728		.00206		.00203
2.715	0.87617	43.8	0.87768	43.9	0.00207	0.8	0.00203
.716	.87661		.87809		.00208		.00204
.717	.87705		.87851		.00209		.00205
.718	.87749		.87892		.00210		.00206
.719	.87792		.87933		.00211		.00207
2.720	0.87836	43.8	0.88121	43.9	0.00212	0.8	0.00207
.721	.87880		.88160		.00213		.00208
.722	.87924		.88200		.00214		.00209
.723	.87968		.88241		.00215		.00210
.724	.88011		.88282		.00216		.00211
2.725	0.88055	43.8	0.88428	43.9	0.00217	0.7	0.00211
.726	.88099		.88471		.00218		.00212
.727	.88143		.88515		.00219		.00213
.728	.88187		.88558		.00220		.00214
.729	.88230		.88601		.00221		.00215
2.730	0.88274	43.8	0.88644	43.9	0.00222	0.7	0.00215
.731	.88318		.88687		.00223		.00216
.732	.88362		.88730		.00224		.00217
.733	.88406		.88773		.00225		.00218
.734	.88449		.88816		.00226		.00219
2.735	0.88493	43.8	0.88859	43.9	0.00227	0.7	0.00219
.736	.88537		.88902		.00228		.00220
.737	.88581		.88945		.00229		.00221
.738	.88624		.88988		.00230		.00222
.739	.88668		.89031		.00231		.00223
2.740	0.88712	43.8	0.89074	43.9	0.00232	0.7	0.00223
.741	.88756		.89117		.00233		.00224
.742	.88800		.89161		.00234		.00225
.743	.88844		.89204		.00235		.00226
.744	.88887		.89247		.00236		.00227
2.745	0.88931	43.8	0.89290	43.9	0.00237	0.7	0.00227
.746	.88975		.89333		.00238		.00228
.747	.89019		.89376		.00239		.00229
.748	.89063		.89419		.00240		.00230
.749	.89106		.89462		.00241		.00231
2.750	0.89150	43.8	0.89505	43.9	0.00242	0.7	0.00231
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

BRIDGMAN TABLE

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
2.750	.089130	43.8	.089105	43.1	0-.000125	0.7	0.00355
.751	.89104		.89105		.000140		.00351
.752	.89104		.89104		.000146		.00351
.753	.89104		.89104		.000152		.00351
.754	.89104		.89104		.000158		.00352
2.755	.089130	43.8	.089120	43.1	0-.000149	0.7	0.00351
.756	.89113		.89104		.000149		.00351
.757	.891157		.89107		.000150		.00350
.758	.89100		.89100		.000151		.00349
.759	.89111		.89103		.000151		.00349
2.760	.089138	43.8	.089136	43.1	0-.000152	0.7	0.00348
.761	.89114		.89109		.000153		.00347
.762	.89109		.000151		.000153		.00347
.763	.89110		.000155		.000154		.00346
.764	.89114		.000168		.000155		.00345
2.765	.089167	43.8	.089151	43.1	0-.000161	0.7	0.00344
.766	.89151		.000161		.000161		.00344
.767	.89151		.000157		.000157		.00343
.768	.89158		.000151		.000158		.00342
.769	.89162		.000154		.000158		.00342
2.770	.089186	43.8	.089179	43.1	0-.000159	0.7	0.00341
.771	.000169		.000160		.000160		.00340
.772	.000163		.000153		.000160		.00340
.773	.000157		.000160		.000161		.00339
.774	.000161		.000159		.000162		.00338
2.775	.089215	43.8	.089202	43.1	0-.000162	0.7	0.00338
.776	.000165		.000163		.000163		.00337
.777	.000162		.000164		.000164		.00336
.778	.000160		.000162		.000164		.00336
.779	.000160		.000155		.000165		.00335
2.780	.089243	43.8	.089236	43.1	0-.000166	0.7	0.00334
.781	.000167		.000161		.000166		.00334
.782	.000164		.000164		.000167		.00333
.783	.000165		.000167		.000168		.00332
.784	.000168		.000170		.000168		.00332
2.785	.089272	43.8	.089263	43.1	0-.000169	0.7	0.00331
.786	.000169		.000169		.000170		.00330
.787	.000170		.000169		.000170		.00330
.788	.000163		.000162		.000171		.00329
.789	.000157		.000160		.000172		.00328
2.790	.089301	43.8	.089289	43.1	0-.000172	0.7	0.00328
.791	.000165		.000172		.000173		.00327
.792	.000169		.000165		.000174		.00326
.793	.000162		.000168		.000174		.00326
.794	.000165		.000161		.000175		.00325
2.795	.089330	43.8	.089314	43.1	0-.000176	0.6	0.00324
.796	.000163		.000167		.000176		.00324
.797	.000169		.000163		.000177		.00323
.798	.000163		.000167		.000178		.00322
.799	.000165		.000167		.000178		.00322
2.800	.089359	43.8	.089350	43.1	0-.000179	0.5	0.00321
u	$\log \tanh u$	$= F_4'$	$\log \coth u$	$= F_5'$	$\log \sinh u$	$= F_6'$	$\log \cosh u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
2.800	0.91339	43.6	0.91615	43.1	0.00276	0.0	0.00321
.801	.91351		.91627		.00277		.00322
.802	.91363		.91639		.00278		.00323
.803	.91375	43.7	.91651		.00279		.00324
.804	.91387		.91663		.00280		.00325
2.805	0.91397	43.7	0.91675	43.1	0.00281	0.0	0.00326
.806	.91409		.91687		.00282		.00327
.807	.91421		.91699		.00283		.00328
.808	.91433		.91711		.00284		.00329
.809	.91445		.91723		.00285		.00330
2.810	0.91455	43.7	0.91735	43.1	0.00286	0.0	0.00331
.811	.91467		.91747		.00287		.00332
.812	.91479		.91759		.00288		.00333
.813	.91491		.91771		.00289		.00334
.814	.91503		.91783		.00290		.00335
2.815	0.91513	43.7	0.91795	43.1	0.00291	0.0	0.00336
.816	.91525		.91807		.00292		.00337
.817	.91537		.91819		.00293		.00338
.818	.91549		.91831		.00294		.00339
.819	.91561		.91843		.00295		.00340
2.820	0.91571	43.7	0.91855	43.1	0.00296	0.0	0.00341
.821	.91583		.91867		.00297		.00342
.822	.91595		.91879		.00298		.00343
.823	.91607		.91891		.00299		.00344
.824	.91619		.91903		.00300		.00345
2.825	0.91629	43.7	0.91915	43.1	0.00301	0.0	0.00346
.826	.91641		.91927		.00302		.00347
.827	.91653		.91939		.00303		.00348
.828	.91665		.91951		.00304		.00349
.829	.91677		.91963		.00305		.00350
2.830	0.91687	43.7	0.91975	43.1	0.00306	0.0	0.00351
.831	.91699		.91987		.00307		.00352
.832	.91711		.91999		.00308		.00353
.833	.91723		.92011		.00309		.00354
.834	.91735		.92023		.00310		.00355
2.835	0.91745	43.7	0.92035	43.1	0.00311	0.0	0.00356
.836	.91757		.92047		.00312		.00357
.837	.91769		.92059		.00313		.00358
.838	.91781		.92071		.00314		.00359
.839	.91793		.92083		.00315		.00360
2.840	0.91803	43.7	0.92095	43.1	0.00316	0.0	0.00361
.841	.91815		.92107		.00317		.00362
.842	.91827		.92119		.00318		.00363
.843	.91839		.92131		.00319		.00364
.844	.91851		.92143		.00320		.00365
2.845	0.91861	43.7	0.92155	43.1	0.00321	0.0	0.00366
.846	.91873		.92167		.00322		.00367
.847	.91885		.92179		.00323		.00368
.848	.91897		.92191		.00324		.00369
.849	.91909		.92203		.00325		.00370
2.850	0.91919	43.7	0.92215	43.1	0.00326	0.0	0.00371
.851	.91931		.92227		.00327		.00372
.852	.91943		.92239		.00328		.00373
.853	.91955		.92251		.00329		.00374
.854	.91967		.92263		.00330		.00375
2.855	0.91977	43.7	0.92275	43.1	0.00331	0.0	0.00376
.856	.91989		.92287		.00332		.00377
.857	.91999		.92299		.00333		.00378
.858	.92011		.92311		.00334		.00379
.859	.92023		.92323		.00335		.00380
2.860	0.92033	43.7	0.92335	43.1	0.00336	0.0	0.00381
.861	.92045		.92347		.00337		.00382
.862	.92057		.92359		.00338		.00383
.863	.92069		.92371		.00339		.00384
.864	.92081		.92383		.00340		.00385
2.865	0.92091	43.7	0.92395	43.1	0.00341	0.0	0.00386
.866	.92103		.92407		.00342		.00387
.867	.92115		.92419		.00343		.00388
.868	.92127		.92431		.00344		.00389
.869	.92139		.92443		.00345		.00390
2.870	0.92149	43.7	0.92455	43.1	0.00346	0.0	0.00391
.871	.92161		.92467		.00347		.00392
.872	.92173		.92479		.00348		.00393
.873	.92185		.92491		.00349		.00394
.874	.92197		.92503		.00350		.00395
2.875	0.92207	43.7	0.92515	43.1	0.00351	0.0	0.00396
.876	.92219		.92527		.00352		.00397
.877	.92231		.92539		.00353		.00398
.878	.92243		.92551		.00354		.00399
.879	.92255		.92563		.00355		.00400
2.880	0.92265	43.7	0.92575	43.1	0.00356	0.0	0.00401
.881	.92277		.92587		.00357		.00402
.882	.92289		.92599		.00358		.00403
.883	.92301		.92611		.00359		.00404
.884	.92313		.92623		.00360		.00405
2.885	0.92323	43.7	0.92635	43.1	0.00361	0.0	0.00406
.886	.92335		.92647		.00362		.00407
.887	.92347		.92659		.00363		.00408
.888	.92359		.92671		.00364		.00409
.889	.92371		.92683		.00365		.00410
2.890	0.92381	43.7	0.92695	43.1	0.00366	0.0	0.00411
.891	.92393		.92707		.00367		.00412
.892	.92405		.92719		.00368		.00413
.893	.92417		.92731		.00369		.00414
.894	.92429		.92743		.00370		.00415
2.895	0.92439	43.7	0.92755	43.1	0.00371	0.0	0.00416
.896	.92451		.92767		.00372		.00417
.897	.92463		.92779		.00373		.00418
.898	.92475		.92791		.00374		.00419
.899	.92487		.92803		.00375		.00420

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$
2.850	0.03525	43.7	0.03810	43.1	9.00709	0.6	0.00301
.851	0.03530		0.03810		0.00710		0.00301
.852	0.03534		0.03811		0.00711		0.00301
.853	0.03537		0.03815		0.00711		0.00301
.854	0.03539		0.03819		0.00712		0.00301
2.855	0.03741	43.7	0.04012	43.1	9.00712	0.6	0.00281
.856	0.03743		0.04015		0.00713		0.00287
.857	0.03744		0.04018		0.00713		0.00287
.858	0.03745		0.04019		0.00714		0.00287
.859	0.03749		0.04021		0.00715		0.00285
2.860	0.03949	43.7	0.04217	43.1	9.00715	0.6	0.00265
.861	0.03950		0.04219		0.00716		0.00261
.862	0.03950		0.04231		0.00716		0.00261
.863	0.03951		0.04237		0.00717		0.00263
.864	0.03952		0.04239		0.00717		0.00263
2.865	0.04148	43.7	0.04416	43.1	9.00718	0.6	0.00241
.866	0.04148		0.04416		0.00719		0.00238
.867	0.04149		0.04420		0.00719		0.00238
.868	0.04152		0.04421		0.00720		0.00239
.869	0.04153		0.04423	43.2	0.00720		0.00239
2.870	0.04348	43.7	0.04620	43.2	9.00721	0.6	0.00219
.871	0.04348		0.04622		0.00721		0.00219
.872	0.04349		0.04625		0.00721		0.00218
.873	0.04351		0.04628		0.00722		0.00218
.874	0.04352		0.04631		0.00723		0.00217
2.875	0.04548	43.7	0.04813	43.2	9.00721	0.6	0.00196
.876	0.04548		0.04813		0.00721		0.00196
.877	0.04549		0.04814		0.00723		0.00195
.878	0.04549		0.04815		0.00723	0.5	0.00195
.879	0.04553		0.04819		0.00723		0.00194
2.880	0.04747	43.7	0.05010	43.2	9.00723	0.5	0.00174
.881	0.04746		0.05012		0.00727		0.00173
.882	0.04747		0.05016		0.00727		0.00173
.883	0.04748		0.05019		0.00728		0.00172
.884	0.04751		0.05023		0.00728		0.00172
2.885	0.04943	43.7	0.05216	43.2	9.00724	0.5	0.00151
.886	0.04943		0.05216		0.00729		0.00150
.887	0.04944		0.05217		0.00730		0.00150
.888	0.04946		0.05219		0.00731		0.00150
.889	0.04949		0.05223		0.00731		0.00150
2.890	0.05141	43.7	0.05412	43.2	9.00732	0.5	0.00131
.891	0.05142		0.05415		0.00732		0.00131
.892	0.05143		0.05418		0.00733		0.00130
.893	0.05145		0.05422		0.00733		0.00130
.894	0.05149		0.05425		0.00733		0.00130
2.895	0.05333	43.7	0.05628	43.2	9.00733	0.5	0.00111
.896	0.05333		0.05631		0.00735		0.00110
.897	0.05334		0.05634		0.00735		0.00110
.898	0.05335		0.05637		0.00735		0.00110
.899	0.05339		0.05641		0.00737		0.00110
2.900	0.05521	43.7	0.05821	43.2	9.00737	0.5	0.00093
u	$\log \sinh u$	$\equiv F_1'$	$\log \cosh u$	$\equiv F_2'$	$\log \tanh u$	$\equiv F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
2.900	0.05711	43.7	0.05971	43.2	9.99737	0.5	0.00054
.001	.05751		.06017		.99745		.00056
.002	.05793		.06060		.99748		.00058
.003	.05832		.06103		.99750		.00061
.004	.05883		.06146		.99751		.00063
2.905	0.05939	43.7	0.06190	43.2	9.99740	0.5	0.00066
.005	.05973		.06233		.99740		.00066
.007	.06017		.06270		.99741		.00069
.008	.06060		.06309		.99741		.00069
.009	.06104		.06352		.99742		.00075
2.910	0.06148	43.7	0.06395	43.2	9.99742	0.5	0.00078
.011	.06194		.06440		.99743		.00077
.012	.06235		.06482		.99743		.00077
.013	.06279		.06525		.99744		.00079
.014	.06322		.06578		.99744		.00079
2.915	0.06366	43.7	0.06621	43.2	9.99745	0.5	0.00075
.015	.06410		.06664		.99745		.00075
.017	.06453		.06708		.99746		.00074
.018	.06497		.06751		.99746		.00074
.019	.06541		.06794		.99747		.00075
2.920	0.06584	43.7	0.06837	43.2	9.99747	0.5	0.00075
.021	.06628		.06880		.99748		.00075
.022	.06672		.06923		.99748		.00075
.023	.06716		.06967		.99749		.00075
.024	.06759		.07010		.99749		.00075
2.925	0.06803	43.7	0.07053	43.2	9.99750	0.5	0.00075
.025	.06847		.07096		.99750		.00075
.027	.06890		.07139		.99751		.00074
.028	.06934		.07183		.99751		.00074
.029	.06978		.07226		.99751		.00074
2.930	0.07021	43.7	0.07269	43.2	9.99752	0.5	0.00074
.031	.07065		.07312		.99753		.00074
.032	.07109		.07355		.99753		.00074
.033	.07154		.07398		.99754		.00074
.034	.07196		.07442		.99754		.00074
2.935	0.07240	43.7	0.07485	43.2	9.99755	0.5	0.00074
.035	.07283		.07528		.99755		.00074
.037	.07327		.07571		.99756		.00074
.038	.07371		.07614		.99756		.00074
.039	.07414		.07658		.99757		.00074
2.940	0.07458	43.7	0.07701	43.2	9.99757	0.5	0.00074
.041	.07502		.07744		.99758		.00074
.042	.07545		.07787		.99758		.00074
.043	.07589		.07830		.99759		.00074
.044	.07633		.07874		.99759		.00074
2.945	0.07676	43.7	0.07917	43.2	9.99760	0.5	0.00074
.045	.07720		.07960		.99760		.00074
.047	.07764		.08003		.99761		.00074
.048	.07807		.08046		.99761		.00074
.049	.07851		.08089		.99762		.00074
2.950	0.07895	43.7	0.08133	43.2	9.99762	0.5	0.00074
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$

BRITHORDIAN TABLE

Logarithms of Hyperbolic Functions.

u	log sinh u	= F ₁ '	log cosh u	= F ₂ '	log tanh u	= F ₃ '	log coth u
2.050	0.07805	43.7	0.08133	43.2	0.00762	0.5	0.00238
.051	.07938		.08176		.00763		.00237
.052	.07982		.08219		.00763		.00237
.053	.08026		.08262		.00763		.00237
.054	.08069		.08305		.00764		.00236
2.055	0.08113	43.7	0.08349	43.2	0.00764	0.5	0.00236
.056	.08157		.08392		.00765		.00235
.057	.08200		.08435		.00765		.00235
.058	.08244		.08478		.00765		.00234
.059	.08288		.08521		.00766		.00234
2.060	0.08331	43.7	0.08565	43.2	0.00767	0.5	0.00233
.061	.08375		.08608		.00767		.00233
.062	.08419		.08651		.00768		.00232
.063	.08462		.08694		.00768		.00232
.064	.08506		.08737		.00769		.00231
2.065	0.08550	43.7	0.08781	43.2	0.00769	0.5	0.00231
.066	.08593		.08824		.00770		.00230
.067	.08637		.08867		.00770		.00230
.068	.08681		.08910		.00770		.00230
.069	.08724		.08953		.00771		.00229
2.070	0.08768	43.7	0.08997	43.2	0.00771	0.5	0.00229
.071	.08812		.09040		.00772		.00228
.072	.08855		.09083		.00772		.00228
.073	.08899		.09126		.00773		.00227
.074	.08943		.09169		.00773		.00227
2.075	0.08985	43.7	0.09213	43.2	0.00774	0.5	0.00226
.076	.09029		.09256		.00774		.00226
.077	.09074		.09299		.00775		.00225
.078	.09117		.09342		.00775	0.4	.00225
.079	.09161		.09385		.00775		.00225
2.080	0.09205	43.7	0.09429	43.2	0.00776	0.4	0.00224
.081	.09248		.09472		.00776		.00224
.082	.09292		.09515		.00777		.00223
.083	.09336		.09558		.00777		.00223
.084	.09379		.09601		.00778		.00222
2.085	0.09423	43.7	0.09645	43.2	0.00778	0.4	0.00222
.086	.09466		.09688		.00779		.00221
.087	.09510		.09731		.00779		.00221
.088	.09554		.09774		.00779		.00221
.089	.09597		.09818		.00780		.00220
2.090	0.09641	43.6	0.09861	43.2	0.00780	0.4	0.00220
.091	.09685		.09904		.00781		.00219
.092	.09728		.09947		.00781		.00219
.093	.09772		.09990		.00782		.00218
.094	.09816		1.00034		.00782		.00218
2.095	0.09859	43.6	1.00077	43.2	0.00783	0.4	0.00217
.096	.09903		.00120		.00783		.00217
.097	.09947		.00163		.00783		.00217
.098	.09990		.00206		.00784		.00216
.099	1.00034		.00250		.00784		.00216
3.000	1.00078	43.6	1.00293	43.2	0.00785	0.4	0.00215
u	log tanh u	= F ₁ '	log coth u	= F ₂ '	log sin u	= F ₃ '	log sec u

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F'$	$\log \cosh u$	$= F'$	$\log \tanh u$	$= F'$	$\log \coth u$
3.00	1.00078	436.5	1.00223	434.1	0.00285	4.3	0.00215
.01	.00081	436.4	.00225	434.2	.00286	4.2	.00211
.02	.00083	436.4	.00227	434.2	.00287	4.1	.00207
.03	.00187	436.3	.00229	434.3	.00287	4.1	.00203
.04	.00183	436.3	.00231	434.3	.00288	4.0	.00199
3.05	1.00229	436.2	1.00234	434.1	0.00288	3.9	0.00195
.05	.00230	436.2	.00235	434.1	.00289	3.8	.00191
.07	.00332	436.2	.00339	434.1	.00291	3.7	.00187
.08	.00338	436.1	.00341	434.5	.00291	3.7	.00183
.09	.00340	436.1	.00343	434.5	.00292	3.6	.00179
3.10	1.00440	436.1	1.00466	434.5	0.00292	3.5	0.00175
.11	.00470	436.0	.00499	434.6	.00292	3.4	.00171
.12	.00512	436.0	.00546	434.6	.00293	3.4	.00167
.13	.00548	436.0	.00584	434.6	.00293	3.3	.00163
.14	.00584	435.9	.00617	434.7	.00293	3.3	.00159
3.15	1.00620	435.9	1.00770	434.7	0.00294	3.2	0.00155
.16	.00705	435.9	.00742	434.7	.00294	3.1	.00151
.17	.00762	435.8	.00765	434.8	.00294	3.1	.00147
.18	.00767	435.8	.00768	434.8	.00295	3.0	.00143
.19	.00810	435.8	.00810	434.8	.00295	2.9	.00139
3.20	1.00890	435.7	1.00943	434.9	0.00295	2.9	0.00135
.21	.00945	435.7	.00976	434.9	.00295	2.8	.00131
.22	.00970	435.7	.00980	434.9	.00295	2.8	.00127
.23	.01005	435.7	.01022	434.9	.00295	2.7	.00123
.24	.01042	435.6	.01075	434.9	.00295	2.7	.00119
3.25	1.10077	435.6	1.11168	434.9	0.00296	2.6	0.00115
.25	.11413	435.6	.11511	434.9	.00297	2.6	.00111
.27	.11849	435.6	.11971	434.9	.00297	2.5	.00107
.28	.12284	435.5	.12407	434.9	.00297	2.5	.00103
.29	.12720	435.5	.12840	434.9	.00297	2.4	.00101
3.30	1.13135	435.5	1.13673	434.9	0.00298	2.4	0.00097
.31	.13501	435.5	.13700	434.9	.00298	2.3	.00093
.32	.13866	435.4	.14139	434.9	.00298	2.3	.00089
.33	.14251	435.4	.14571	434.9	.00298	2.2	.00085
.34	.14637	435.4	.14961	434.9	.00298	2.2	.00081
3.35	1.15132	435.4	1.15439	434.9	0.00298	2.1	0.00077
.35	.15708	435.3	.15922	434.9	.00298	2.1	.00073
.37	.16203	435.3	.16365	434.9	.00298	2.1	.00069
.38	.16618	435.3	.16739	434.9	.00298	2.0	.00065
.39	.17073	435.3	.17172	434.9	.00298	2.0	.00061
3.40	1.17509	435.3	1.17605	434.9	0.00299	1.9	0.00057
.41	.17944	435.2	.18039	434.9	.00299	1.9	.00053
.42	.18379	435.2	.18472	434.9	.00299	1.9	.00049
.43	.18814	435.2	.18901	434.9	.00299	1.8	.00045
.44	.19250	435.2	.19339	434.9	.00299	1.8	.00041
3.45	1.19685	435.2	1.19772	434.9	0.00299	1.8	0.00037
.45	.20120	435.2	.20205	434.9	.00299	1.7	.00033
.47	.20555	435.1	.20630	434.9	.00299	1.7	.00029
.48	.20990	435.1	.21073	434.9	.00299	1.6	.00025
.49	.21425	435.1	.21505	434.9	.00299	1.6	.00021
3.50	1.21850	435.1	1.21930	434.9	0.00300	1.5	0.00017
u	$\log \sinh u$	$= F'$	$\log \cosh u$	$= F'$	$\log \tanh u$	$= F'$	$\log \coth u$

BRITISH STANDARD TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\equiv F_4'$	$\log \cosh u$	$\equiv F_5'$	$\log \tanh u$	$\equiv F_6'$	$\log \coth u$
3.50	1.54880	435.1	1.51940	433.5	0.02940	1.6	0.00070
.51	1.55370		1.52473		0.03022		0.00076
.52	1.55854		1.53007		0.03104		0.00081
.53	1.56340	435.0	1.53540	433.6	0.03185	1.5	0.00087
.54	1.56821		1.54074		0.03267		0.00093
3.55	1.57309	435.0	1.54607	433.6	0.03348	1.4	0.00092
.56	1.57791		1.55141		0.03429		0.00090
.57	1.58270		1.55675		0.03511		0.00089
.58	1.58749		1.56208		0.03593	1.3	0.00087
.59	1.59228		1.56742		0.03674		0.00086
3.60	1.59711	434.9	1.57275	433.6	0.03755	1.3	0.00085
.61	1.60190		1.57809	433.7	0.03836		0.00084
.62	1.60670		1.58343		0.03918	1.2	0.00082
.63	1.61151		1.58876		0.04000		0.00081
.64	1.61631		1.59410		0.04081		0.00080
3.65	1.62115	434.9	1.59944	433.7	0.04162	1.2	0.00079
.66	1.62596		1.60478		0.04244		0.00078
.67	1.63078		1.61011		0.04325	1.1	0.00076
.68	1.63560	434.8	1.61545	433.8	0.04406		0.00075
.69	1.64041		1.62079		0.04487		0.00074
3.70	1.64529	434.8	1.62612	433.8	0.04567	1.1	0.00073
.71	1.65009		1.63146		0.04648	1.0	0.00072
.72	1.65490		1.63680		0.04729		0.00071
.73	1.65971		1.64214		0.04810		0.00070
.74	1.66451		1.64748		0.04891		0.00069
3.75	1.66933	434.8	1.65281	433.8	0.04972	1.0	0.00068
.76	1.67414		1.65815		0.05053	.9	0.00067
.77	1.67895		1.66349		0.05134		0.00066
.78	1.68376	434.7	1.66883	433.9	0.05215		0.00065
.79	1.68857		1.67417		0.05296		0.00064
3.80	1.69337	434.7	1.67951	433.9	0.05377	.9	0.00063
.81	1.69818		1.68484		0.05457		0.00062
.82	1.70299		1.69018		0.05538	.8	0.00061
.83	1.70779		1.69552		0.05619		0.00060
.84	1.71260		1.70086		0.05699		0.00059
3.85	1.71741	434.7	1.70619	433.9	0.05780	.8	0.00058
.86	1.72221		1.71153		0.05861		0.00057
.87	1.72701		1.71687		0.05941		0.00056
.88	1.73181		1.72221		0.06022	.7	0.00055
.89	1.73661		1.72755		0.06102		0.00054
3.90	1.74141	434.7	1.73289	433.9	0.06183	.7	0.00053
.91	1.74621	434.6	1.73823	433.9	0.06263		0.00052
.92	1.75101		1.74357		0.06344		0.00051
.93	1.75581		1.74891		0.06424		0.00050
.94	1.76061		1.75425		0.06505		0.00049
3.95	1.76541	434.6	1.75959	434.0	0.06585	.6	0.00048
.96	1.77021		1.76493		0.06666		0.00047
.97	1.77501		1.77027		0.06746		0.00046
.98	1.77981		1.77561		0.06827		0.00045
.99	1.78461		1.78095		0.06907		0.00044
4.00	1.78940	434.6	1.78629	434.0	0.06987	.6	0.00043
u	$\log \sinh u$	$\equiv F_4'$	$\log \cosh u$	$\equiv F_5'$	$\log \tanh u$	$\equiv F_6'$	$\log \coth u$

BRITISH STANDARD TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\pi F'$	$\log \cosh u$	$\pi F'$	$\log \tanh u$	$\pi F'$	$\log \coth u$
4.00	1.43600	434.0	1.43602	434.0	9.99971	0.0	0.00029
.01	.44015		.44015		.99972		.00029
.02	.44419		.44419		.99972		.00028
.03	.44804		.44804		.99973	0.5	.00027
.04	.45179		.45179		.99973		.00027
4.05	1.45573	434.0	1.45570	434.0	9.99971	0.5	0.00026
.06	.45958		.45958		.99974		.00026
.07	.46332	434.5	.46332		.99975		.00025
.08	.46707		.46707		.99975		.00025
.09	.47071		.47071	434.1	.99976		.00024
4.10	1.47456	434.5	1.47459	434.1	9.99976	0.5	0.00024
.11	.47830		.47830		.99977		.00023
.12	.48195		.48195		.99977		.00023
.13	.48560		.48560		.99978	0.1	.00022
.14	.48924		.48924		.99978		.00022
4.15	1.50118	434.5	1.50110	434.1	9.99978	0.1	0.00022
.16	.50513		.50513		.99979		.00021
.17	.50907		.50907		.99979		.00021
.18	.51292		.51292		.99980		.00020
.19	.51676		.51676		.99980		.00020
4.20	1.52091	434.5	1.52091	434.1	9.99980	0.1	0.00020
.21	.52475		.52475		.99981		.00019
.22	.52850		.52850		.99981		.00019
.23	.53224		.53224		.99982		.00018
.24	.53599		.53599		.99982		.00018
4.25	1.54013	434.5	1.54011	434.1	9.99982	0.1	0.00018
.26	.54388		.54388		.99983	0.1	.00017
.27	.54762		.54762		.99983		.00017
.28	.55137		.55137		.99983		.00017
.29	.55511		.55511		.99984		.00016
4.30	1.55936	434.5	1.55932	434.1	9.99984	0.1	0.00016
.31	.56310		.56310		.99984		.00016
.32	.56685	434.6	.56685		.99985		.00015
.33	.57059		.57059		.99985		.00015
.34	.57433		.57433		.99985		.00015
4.35	1.57888	434.6	1.57882	434.1	9.99985	0.1	0.00015
.36	.58262		.58262	434.2	.99986		.00014
.37	.58637		.58637		.99986		.00014
.38	.59011		.59011		.99986		.00014
.39	.59386		.59386		.99987		.00013
4.40	1.60080	434.6	1.60093	434.2	9.99987	0.1	0.00013
.41	.60454		.60454		.99987		.00013
.42	.60829		.60829		.99987		.00013
.43	.61203		.61203		.99987		.00013
.44	.61578		.61578		.99988	0.2	.00012
4.45	1.62192	434.6	1.62165	434.2	9.99988	0.2	0.00012
.46	.62567		.62567		.99988		.00012
.47	.62941		.62941		.99988		.00011
.48	.63316		.63316		.99989		.00011
.49	.63690		.63690		.99989		.00011
4.50	1.65324	434.6	1.65335	434.2	9.99989	0.2	0.00011
u	$\log \sinh u$	$\pi F'$	$\log \cosh u$	$\pi F'$	$\log \tanh u$	$\pi F'$	$\log \coth u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$\pi F_1'$	$\log \cosh u$	$\pi F_2'$	$\log \tanh u$	$\pi F_3'$	$\log \coth u$
4.30	1.65324	434.1	1.65315	434.2	9.99989	0.2	0.00011
.51	.66739		.66769		.99999		.00011
.52	.66853		.66883		.99999		.00010
.53	.66967		.66997		.99999		.00010
.54	.67081		.67111		.99999		.00010
4.35	1.67396	434.3	1.67386	434.2	9.99990	0.2	0.00010
.55	.67510		.67540		.99999		.00010
.56	.67624		.67654		.99999		.00009
.57	.67738		.67768		.99999		.00009
.58	.67852		.67882		.99999		.00009
.59	.67966		.68000		.99999		.00009
4.60	1.68281	434.4	1.68277	434.2	9.99991	0.2	0.00009
.61	.68395		.68425		.99999		.00009
.62	.68509		.68539		.99999		.00008
.63	.68623		.68653		.99999		.00008
.64	.68737		.68767		.99999		.00008
4.65	1.69052	434.5	1.69048	434.2	9.99992	0.2	0.00008
.66	.69166		.69196		.99999		.00008
.67	.69280		.69310		.99999		.00008
.68	.69394		.69424		.99999	0.1	.00007
.69	.69508		.69538		.99999		.00007
4.70	1.70123	434.6	1.70119	434.2	9.99993	0.1	0.00007
.71	.70237		.70267		.99999		.00007
.72	.70351		.70381		.99999		.00007
.73	.70465		.70495		.99999		.00007
.74	.70579		.70609		.99999		.00007
4.75	1.70894	434.7	1.70890	434.2	9.99994	0.1	0.00007
.76	.71008		.71038		.99999		.00006
.77	.71122		.71152		.99999		.00006
.78	.71236		.71266		.99999		.00006
.79	.71350		.71380		.99999		.00006
4.80	1.71665	434.8	1.71661	434.2	9.99995	0.1	0.00006
.81	.71779		.71809		.99999		.00006
.82	.71893		.71923		.99999		.00006
.83	.72007		.72037		.99999		.00006
.84	.72121		.72151		.99999		.00005
4.85	1.72436	434.9	1.72432	434.2	9.99996	0.1	0.00005
.86	.72550		.72580		.99999		.00005
.87	.72664		.72694		.99999		.00005
.88	.72778		.72808		.99999		.00005
.89	.72892		.72922		.99999		.00005
4.90	1.73207	435.0	1.73203	434.2	9.99997	0.1	0.00005
.91	.73321		.73351		.99999		.00005
.92	.73435		.73465		.99999		.00005
.93	.73549		.73579		.99999		.00005
.94	.73663		.73693	435.3	.99999		.00004
4.95	1.73978	435.1	1.73974	434.3	9.99998	0.1	0.00004
.96	.74092		.74122		.99999		.00004
.97	.74206		.74236		.99999		.00004
.98	.74320		.74350		.99999		.00004
.99	.74434		.74464		.99999		.00004
5.00	1.74749	435.2	1.74745	434.3	9.99999	0.1	0.00004
u	$\log \sinh u$	$\pi F_1'$	$\log \cosh u$	$\pi F_2'$	$\log \tanh u$	$\pi F_3'$	$\log \coth u$

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
5.00	1.87012	4343	1.87096	4343	0.00084	0,1	0.00000
.01	.87077		.87146		.00090		.00001
.02	.87111		.87183		.00096		.00001
.03	.87153		.87219		.00099		.00001
.04	.87189		.87253		.00103		.00001
5.05	1.87213	4343	1.87217	4343	0.00096	0,1	0.00001
.06	.87248		.87252		.00097		.00001
.07	.87283		.87286		.00097		.00001
.08	.87317		.87320		.00097		.00001
.09	.87351		.87355		.00097		.00001
5.10	1.87386	4343	1.87389	4343	0.00097	0,1	0.00001
.11	.87420		.87423		.00097		.00001
.12	.87455		.87457		.00097		.00001
.13	.87489		.87492		.00097		.00001
.14	.87523		.87526		.00097		.00001
5.15	1.87557	4343	1.87560	4343	0.00097	0,1	0.00001
.16	.87592		.87594		.00097		.00001
.17	.87626		.87629		.00097		.00001
.18	.87660		.87663		.00097		.00001
.19	.87694		.87697		.00097		.00001
5.20	1.87729	4343	1.87731	4343	0.00097	0,1	0.00001
.21	.87763		.87766		.00097		.00001
.22	.87797		.87800		.00097		.00001
.23	.87831		.87834		.00097	0,0	.00001
.24	.87865		.87868		.00097		.00001
5.25	1.87900	4343	1.87903	4343	0.00098	0,0	0.00001
.26	.87935		.87937		.00098		.00001
.27	.87969		.87971		.00098		.00001
.28	.87993		.88005		.00098		.00001
.29	.88038		.88040		.00098		.00001
5.30	2.00072	4343	2.00074	4343	0.00098	0,0	0.00001
.31	.00106		.00108		.00098		.00001
.32	.00141		.00143		.00098		.00001
.33	.00175		.00177		.00098		.00001
.34	.00210		.00211		.00098		.00001
5.35	2.00244	4343	2.00246	4343	0.00098	0,0	0.00001
.36	.00278		.00280		.00098		.00001
.37	.00312		.00314		.00098		.00001
.38	.00347		.00348		.00098		.00001
.39	.00381		.00383		.00098		.00001
5.40	2.00415	4343	2.00417	4343	0.00098	0,0	0.00001
.41	.00449		.00451		.00098		.00001
.42	.00483		.00485		.00098		.00001
.43	.00518		.00520		.00098		.00001
.44	.00552		.00554		.00098		.00001
5.45	2.00587	4343	2.00588	4343	0.00098	0,0	0.00001
.46	.00621		.00623		.00098		.00001
.47	.00655		.00657		.00098		.00001
.48	.00689		.00691		.00098		.00001
.49	.00724		.00725		.00098		.00001
5.50	2.00758	4343	2.00760	4343	0.00099	0,0	0.00001
u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$

SMITHSONIAN TABLES

Logarithms of Hyperbolic Functions.

u	$\log \sinh u$	$= F_1'$	$\log \cosh u$	$= F_2'$	$\log \tanh u$	$= F_3'$	$\log \coth u$
5.50	2.469728	434.4	2.487960	434.4	0.000000	0.0	0.000000
.51	.000001		.000001		.000000		.000001
.52	.000002		.000002		.000000		.000002
.53	.000004		.000004		.000000		.000004
.54	.000008		.000007		.000000		.000008
5.55	2.469840	434.4	2.488071	434.4	0.000000	0.0	0.000000
.56	.113931		.113935		.000000		.000000
.57	.117923		.118000		.000000		.000000
.58	.122111		.122111		.000000		.000000
.59	.126497		.126497		.000000		.000000
5.60	2.470000	434.4	2.489101	434.4	0.000000	0.0	0.000000
.61	.130880		.130880		.000000		.000000
.62	.134970		.134971		.000000		.000000
.63	.139069		.139069		.000000		.000000
.64	.143176		.143176		.000000		.000000
5.65	2.470123	434.4	2.489223	434.4	0.000000	0.0	0.000000
.66	.147282		.147282		.000000		.000000
.67	.151387		.151387		.000000		.000000
.68	.155490		.155490		.000000		.000000
.69	.159591		.159591		.000000		.000000
5.70	2.470244	434.4	2.489343	434.4	0.000000	0.0	0.000000
.71	.163693		.163693		.000000		.000000
.72	.167793		.167793		.000000		.000000
.73	.171891		.171891		.000000		.000000
.74	.175988		.175988		.000000		.000000
5.75	2.470365	434.4	2.489463	434.4	0.000000	0.0	0.000000
.76	.180084		.180084		.000000		.000000
.77	.184181		.184181		.000000		.000000
.78	.188276		.188276		.000000		.000000
.79	.192371		.192371		.000000		.000000
5.80	2.470485	434.4	2.489563	434.4	0.000000	0.0	0.000000
.81	.196465		.196465		.000000		.000000
.82	.199559		.199559		.000000		.000000
.83	.202652		.202652		.000000		.000000
.84	.205744		.205744		.000000		.000000
5.85	2.470599	434.4	2.489663	434.4	0.000000	0.0	0.000000
.86	.209836		.209836		.000000		.000000
.87	.212927		.212927		.000000		.000000
.88	.216017		.216017		.000000		.000000
.89	.219106		.219106		.000000		.000000
5.90	2.470709	434.4	2.489763	434.4	0.000000	0.0	0.000000
.91	.223195		.223195		.000000		.000000
.92	.226281		.226281		.000000		.000000
.93	.229366		.229366		.000000		.000000
.94	.232449		.232449		.000000		.000000
5.95	2.470819	434.4	2.489863	434.4	0.000000	0.0	0.000000
.96	.236532		.236532		.000000		.000000
.97	.239613		.239613		.000000		.000000
.98	.242693		.242693		.000000		.000000
.99	.245771		.245771		.000000		.000000
6.00	2.470971	434.4	2.490063	434.4	0.000000	0.0	0.000000
u	$\log \tanh u$	$= F_1'$	$\log \coth u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$

SMITHSONIAN TABLES

TABLE II

NATURAL HYPERBOLIC FUNCTIONS

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
0.0000	0.00000	1.00000	0.00000	∞	0.00000	1.00000	0.00000	∞
0.0001	0.00010	1.00000	0.00010	10000.00	0.00010	1.00000	0.00010	10000.00
0.0002	0.00020	1.00000	0.00020	5000.00	0.00020	1.00000	0.00020	5000.00
0.0003	0.00030	1.00000	0.00030	3333.33	0.00030	1.00000	0.00030	3333.33
0.0004	0.00040	1.00000	0.00040	2500.00	0.00040	1.00000	0.00040	2500.00
0.0005	0.00050	1.00000	0.00050	2000.00	0.00050	1.00000	0.00050	2000.00
0.0010	0.00100	1.00000	0.00100	1000.00	0.00100	1.00000	0.00100	1000.00
0.0011	0.00110	1.00000	0.00110	909.09	0.00110	1.00000	0.00110	909.09
0.0012	0.00120	1.00000	0.00120	833.33	0.00120	1.00000	0.00120	833.33
0.0013	0.00130	1.00000	0.00130	769.23	0.00130	1.00000	0.00130	769.23
0.0014	0.00140	1.00000	0.00140	714.29	0.00140	1.00000	0.00140	714.29
0.0015	0.00150	1.00000	0.00150	666.67	0.00150	1.00000	0.00150	666.67
0.0016	0.00160	1.00000	0.00160	625.00	0.00160	1.00000	0.00160	625.00
0.0017	0.00170	1.00000	0.00170	588.24	0.00170	1.00000	0.00170	588.24
0.0018	0.00180	1.00000	0.00180	555.56	0.00180	1.00000	0.00180	555.56
0.0019	0.00190	1.00000	0.00190	526.32	0.00190	1.00000	0.00190	526.32
0.0020	0.00200	1.00000	0.00200	500.00	0.00200	1.00000	0.00200	500.00
0.0021	0.00210	1.00000	0.00210	476.19	0.00210	1.00000	0.00210	476.19
0.0022	0.00220	1.00000	0.00220	454.55	0.00220	1.00000	0.00220	454.55
0.0023	0.00230	1.00000	0.00230	434.78	0.00230	1.00000	0.00230	434.78
0.0024	0.00240	1.00000	0.00240	416.67	0.00240	1.00000	0.00240	416.67
0.0025	0.00250	1.00000	0.00250	400.00	0.00250	1.00000	0.00250	400.00
0.0026	0.00260	1.00000	0.00260	384.62	0.00260	1.00000	0.00260	384.62
0.0027	0.00270	1.00000	0.00270	370.37	0.00270	1.00000	0.00270	370.37
0.0028	0.00280	1.00000	0.00280	357.14	0.00280	1.00000	0.00280	357.14
0.0029	0.00290	1.00000	0.00290	344.83	0.00290	1.00000	0.00290	344.83
0.0030	0.00300	1.00000	0.00300	333.33	0.00300	1.00000	0.00300	333.33
0.0031	0.00310	1.00000	0.00310	322.58	0.00310	1.00000	0.00310	322.58
0.0032	0.00320	1.00000	0.00320	312.50	0.00320	1.00000	0.00320	312.50
0.0033	0.00330	1.00000	0.00330	303.03	0.00330	1.00000	0.00330	303.03
0.0034	0.00340	1.00000	0.00340	294.12	0.00340	1.00000	0.00340	294.12
0.0035	0.00350	1.00000	0.00350	285.71	0.00350	1.00000	0.00350	285.71
0.0036	0.00360	1.00000	0.00360	277.78	0.00360	1.00000	0.00360	277.78
0.0037	0.00370	1.00000	0.00370	270.27	0.00370	1.00000	0.00370	270.27
0.0038	0.00380	1.00000	0.00380	263.16	0.00380	1.00000	0.00380	263.16
0.0039	0.00390	1.00000	0.00390	256.41	0.00390	1.00000	0.00390	256.41
0.0040	0.00400	1.00000	0.00400	250.00	0.00400	1.00000	0.00400	250.00
0.0041	0.00410	1.00000	0.00410	243.90	0.00410	1.00000	0.00410	243.90
0.0042	0.00420	1.00000	0.00420	238.10	0.00420	1.00000	0.00420	238.10
0.0043	0.00430	1.00000	0.00430	232.56	0.00430	1.00000	0.00430	232.56
0.0044	0.00440	1.00000	0.00440	227.27	0.00440	1.00000	0.00440	227.27
0.0045	0.00450	1.00000	0.00450	222.22	0.00450	1.00000	0.00450	222.22
0.0046	0.00460	1.00000	0.00460	217.39	0.00460	1.00000	0.00460	217.39
0.0047	0.00470	1.00000	0.00470	212.77	0.00470	1.00000	0.00470	212.77
0.0048	0.00480	1.00000	0.00480	208.33	0.00480	1.00000	0.00480	208.33
0.0049	0.00490	1.00000	0.00490	204.08	0.00490	1.00000	0.00490	204.08
0.0050	0.00500	1.00000	0.00500	200.00	0.00500	1.00000	0.00500	200.00
u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	u	$\sinh u$	$\cosh u$	$\tanh u$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.0000	0.000000	10.0	1.00000	0.1	0.00000	10.0	200.00	400.0
0.001	0.001000	.00001	1.00001	.000500	0.00500	100.00	20.000	38.15
0.002	0.002000	.00001	1.00001	.000500	0.01000	10.000	10.000	30.88
0.003	0.003000	.00001	1.00001	.000500	0.01500	6.6666	15.000	25.00
0.004	0.004000	.00001	1.00001	.000500	0.02000	5.0000	20.000	21.49
0.005	0.005000	10.0	1.00002	0.1	0.00500	10.0	181.82	360.6
0.010	0.010000	.00002	1.00002	.000500	0.01000	100.00	10.000	31.62
0.015	0.015000	.00002	1.00002	.000500	0.01500	66.667	15.000	25.00
0.020	0.020000	.00002	1.00002	.000500	0.02000	50.000	20.000	21.49
0.025	0.025000	.00002	1.00002	.000500	0.02500	40.000	25.000	18.18
0.030	0.030000	.00002	1.00002	.000500	0.03000	33.333	30.000	15.49
0.035	0.035000	.00002	1.00002	.000500	0.03500	28.571	35.000	13.45
0.040	0.040000	.00002	1.00002	.000500	0.04000	25.000	40.000	11.92
0.045	0.045000	.00002	1.00002	.000500	0.04500	22.222	45.000	10.67
0.050	0.050000	.00002	1.00002	.000500	0.05000	20.000	50.000	9.51
0.055	0.055000	.00002	1.00002	.000500	0.05500	18.182	55.000	8.45
0.060	0.060000	.00002	1.00002	.000500	0.06000	16.667	60.000	7.50
0.065	0.065000	.00002	1.00002	.000500	0.06500	15.385	65.000	6.67
0.070	0.070000	.00002	1.00002	.000500	0.07000	14.286	70.000	5.95
0.075	0.075000	.00002	1.00002	.000500	0.07500	13.333	75.000	5.33
0.080	0.080000	.00002	1.00002	.000500	0.08000	12.500	80.000	4.80
0.085	0.085000	.00002	1.00002	.000500	0.08500	11.765	85.000	4.35
0.090	0.090000	.00002	1.00002	.000500	0.09000	11.111	90.000	3.98
0.095	0.095000	.00002	1.00002	.000500	0.09500	10.526	95.000	3.67
0.100	0.100000	.00002	1.00002	.000500	0.10000	10.000	100.00	3.40
0.105	0.105000	.00002	1.00002	.000500	0.10500	9.524	105.00	3.16
0.110	0.110000	.00002	1.00002	.000500	0.11000	9.091	110.00	2.94
0.115	0.115000	.00002	1.00002	.000500	0.11500	8.696	115.00	2.74
0.120	0.120000	.00002	1.00002	.000500	0.12000	8.333	120.00	2.56
0.125	0.125000	.00002	1.00002	.000500	0.12500	8.000	125.00	2.39
0.130	0.130000	.00002	1.00002	.000500	0.13000	7.692	130.00	2.24
0.135	0.135000	.00002	1.00002	.000500	0.13500	7.407	135.00	2.10
0.140	0.140000	.00002	1.00002	.000500	0.14000	7.143	140.00	1.97
0.145	0.145000	.00002	1.00002	.000500	0.14500	6.897	145.00	1.85
0.150	0.150000	.00002	1.00002	.000500	0.15000	6.667	150.00	1.74
0.155	0.155000	.00002	1.00002	.000500	0.15500	6.452	155.00	1.64
0.160	0.160000	.00002	1.00002	.000500	0.16000	6.250	160.00	1.55
0.165	0.165000	.00002	1.00002	.000500	0.16500	6.061	165.00	1.46
0.170	0.170000	.00002	1.00002	.000500	0.17000	5.882	170.00	1.38
0.175	0.175000	.00002	1.00002	.000500	0.17500	5.714	175.00	1.31
0.180	0.180000	.00002	1.00002	.000500	0.18000	5.556	180.00	1.25
0.185	0.185000	.00002	1.00002	.000500	0.18500	5.405	185.00	1.19
0.190	0.190000	.00002	1.00002	.000500	0.19000	5.263	190.00	1.14
0.195	0.195000	.00002	1.00002	.000500	0.19500	5.128	195.00	1.09
0.200	0.200000	.00002	1.00002	.000500	0.20000	5.000	200.00	1.05
0.205	0.205000	.00002	1.00002	.000500	0.20500	4.878	205.00	1.01
0.210	0.210000	.00002	1.00002	.000500	0.21000	4.762	210.00	0.97
0.215	0.215000	.00002	1.00002	.000500	0.21500	4.651	215.00	0.94
0.220	0.220000	.00002	1.00002	.000500	0.22000	4.545	220.00	0.91
0.225	0.225000	.00002	1.00002	.000500	0.22500	4.444	225.00	0.88
0.230	0.230000	.00002	1.00002	.000500	0.23000	4.348	230.00	0.85
0.235	0.235000	.00002	1.00002	.000500	0.23500	4.257	235.00	0.82
0.240	0.240000	.00002	1.00002	.000500	0.24000	4.170	240.00	0.80
0.245	0.245000	.00002	1.00002	.000500	0.24500	4.087	245.00	0.77
0.250	0.250000	.00002	1.00002	.000500	0.25000	4.008	250.00	0.75
0.255	0.255000	.00002	1.00002	.000500	0.25500	3.932	255.00	0.73
0.260	0.260000	.00002	1.00002	.000500	0.26000	3.860	260.00	0.71
0.265	0.265000	.00002	1.00002	.000500	0.26500	3.791	265.00	0.69
0.270	0.270000	.00002	1.00002	.000500	0.27000	3.726	270.00	0.67
0.275	0.275000	.00002	1.00002	.000500	0.27500	3.664	275.00	0.65
0.280	0.280000	.00002	1.00002	.000500	0.28000	3.605	280.00	0.63
0.285	0.285000	.00002	1.00002	.000500	0.28500	3.549	285.00	0.61
0.290	0.290000	.00002	1.00002	.000500	0.29000	3.495	290.00	0.59
0.295	0.295000	.00002	1.00002	.000500	0.29500	3.443	295.00	0.57
0.300	0.300000	.00002	1.00002	.000500	0.30000	3.393	300.00	0.56
0.305	0.305000	.00002	1.00002	.000500	0.30500	3.345	305.00	0.54
0.310	0.310000	.00002	1.00002	.000500	0.31000	3.298	310.00	0.52
0.315	0.315000	.00002	1.00002	.000500	0.31500	3.253	315.00	0.51
0.320	0.320000	.00002	1.00002	.000500	0.32000	3.209	320.00	0.49
0.325	0.325000	.00002	1.00002	.000500	0.32500	3.166	325.00	0.48
0.330	0.330000	.00002	1.00002	.000500	0.33000	3.125	330.00	0.46
0.335	0.335000	.00002	1.00002	.000500	0.33500	3.084	335.00	0.45
0.340	0.340000	.00002	1.00002	.000500	0.34000	3.045	340.00	0.44
0.345	0.345000	.00002	1.00002	.000500	0.34500	3.006	345.00	0.42
0.350	0.350000	.00002	1.00002	.000500	0.35000	2.969	350.00	0.41
0.355	0.355000	.00002	1.00002	.000500	0.35500	2.933	355.00	0.40
0.360	0.360000	.00002	1.00002	.000500	0.36000	2.898	360.00	0.39
0.365	0.365000	.00002	1.00002	.000500	0.36500	2.864	365.00	0.38
0.370	0.370000	.00002	1.00002	.000500	0.37000	2.830	370.00	0.37
0.375	0.375000	.00002	1.00002	.000500	0.37500	2.797	375.00	0.36
0.380	0.380000	.00002	1.00002	.000500	0.38000	2.765	380.00	0.35
0.385	0.385000	.00002	1.00002	.000500	0.38500	2.733	385.00	0.34
0.390	0.390000	.00002	1.00002	.000500	0.39000	2.702	390.00	0.33
0.395	0.395000	.00002	1.00002	.000500	0.39500	2.672	395.00	0.32
0.400	0.400000	.00002	1.00002	.000500	0.40000	2.642	400.00	0.31
0.405	0.405000	.00002	1.00002	.000500	0.40500	2.613	405.00	0.30
0.410	0.410000	.00002	1.00002	.000500	0.41000	2.584	410.00	0.29
0.415	0.415000	.00002	1.00002	.000500	0.41500	2.556	415.00	0.28
0.420	0.420000	.00002	1.00002	.000500	0.42000	2.528	420.00	0.27
0.425	0.425000	.00002	1.00002	.000500	0.42500	2.501	425.00	0.26
0.430	0.430000	.00002	1.00002	.000500	0.43000	2.474	430.00	0.25
0.435	0.435000	.00002	1.00002	.000500	0.43500	2.448	435.00	0.24
0.440	0.440000	.00002	1.00002	.000500	0.44000	2.422	440.00	0.23
0.445	0.445000	.00002	1.00002	.000500	0.44500	2.397	445.00	0.22
0.450	0.450000	.00002	1.00002	.000500	0.45000	2.372	450.00	0.21
0.455	0.455000	.00002	1.00002	.000500	0.45500	2.348	455.00	0.20
0.460	0.460000	.00002	1.00002	.000500	0.46000	2.324	460.00	0.19
0.465	0.465000	.00002	1.00002	.000500	0.46500	2.300	465.00	0.18
0.470	0.470000	.00002	1.00002	.000500	0.47000	2.277	470.00	0.17
0.475	0.475000	.00002	1.00002	.000500	0.47500	2.254	475.00	0.16
0.480	0.480000	.00002	1.00002	.000500	0.48000	2.231	480.00	0.15
0.485	0.485000	.00002	1.00002	.000500	0.48500	2.209	485.00	0.14
0.490	0.490000	.00002	1.00002	.000500	0.49000	2.187	490.00	0.13
0.495	0.495000	.00002	1.00002	.000500	0.49500	2.166	495.00	0.12
0.500	0.500000	.00002	1.00002	.000500	0.50000	2.145	500.00	0.11
0.505	0.505000	.00002	1.00002	.000500	0.50500	2.124	505.00	0.10
0.510	0.510000	.00002	1.00002	.000500	0.51000	2.104	510.00	0.09
0.515	0.515000	.00002	1.00002	.000500	0.51500	2.084	515.00	0.08
0.520	0.520000	.00002	1.00002	.000500	0.52000	2.064	520.00	0.07
0.525	0.525000	.00002	1.00002	.000500	0.52500	2.045	525.00	0.06
0.530	0.530000	.00002	1.00002	.000500	0.53000	2.026	530.00	0.05
0.535	0.535000	.00002	1.00002	.000500	0.53500	2.007	535.00	0.04
0.540	0.540000	.00002	1.00002	.000500	0.54000	1.988	540.00	0.03
0.545	0.545000	.00002	1.00002	.000500	0.54500	1.969	545.00	0.02
0.550	0.550000	.00002	1.00002	.000500	0.55000	1.951	550.00	0.01
0.555	0.555000	.00002	1.00002	.000500	0.55500	1.933	555.00	0.00
0.560	0.560000	.00002	1.00002	.000500	0.56000	1.915	560.00	0.00
0								

Natural Hyperbolic Functions.

u	sinh u	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
0.0000	0.00000	1.00000	0.00000	∞	0.00000	1.00000	0.00000	∞
0.0001	0.00010	1.00005	0.00010	9.9999	0.00010	1.00005	0.00010	9.9999
0.0002	0.00020	1.00005	0.00020	4.9998	0.00020	1.00005	0.00020	4.9998
0.0003	0.00030	1.00005	0.00030	3.3333	0.00030	1.00005	0.00030	3.3333
0.0004	0.00040	1.00005	0.00040	2.5000	0.00040	1.00005	0.00040	2.5000
0.0005	0.00050	1.00005	0.00050	2.0000	0.00050	1.00005	0.00050	2.0000
0.0010	0.00100	1.00005	0.00100	1.0000	0.00100	1.00005	0.00100	1.0000
0.0011	0.00110	1.00005	0.00110	0.9091	0.00110	1.00005	0.00110	0.9091
0.0012	0.00120	1.00005	0.00120	0.8333	0.00120	1.00005	0.00120	0.8333
0.0013	0.00130	1.00005	0.00130	0.7692	0.00130	1.00005	0.00130	0.7692
0.0014	0.00140	1.00005	0.00140	0.7143	0.00140	1.00005	0.00140	0.7143
0.0015	0.00150	1.00005	0.00150	0.6667	0.00150	1.00005	0.00150	0.6667
0.0016	0.00160	1.00005	0.00160	0.6250	0.00160	1.00005	0.00160	0.6250
0.0017	0.00170	1.00005	0.00170	0.5882	0.00170	1.00005	0.00170	0.5882
0.0018	0.00180	1.00005	0.00180	0.5556	0.00180	1.00005	0.00180	0.5556
0.0019	0.00190	1.00005	0.00190	0.5263	0.00190	1.00005	0.00190	0.5263
0.0020	0.00200	1.00005	0.00200	0.5000	0.00200	1.00005	0.00200	0.5000
0.0021	0.00210	1.00005	0.00210	0.4762	0.00210	1.00005	0.00210	0.4762
0.0022	0.00220	1.00005	0.00220	0.4545	0.00220	1.00005	0.00220	0.4545
0.0023	0.00230	1.00005	0.00230	0.4348	0.00230	1.00005	0.00230	0.4348
0.0024	0.00240	1.00005	0.00240	0.4167	0.00240	1.00005	0.00240	0.4167
0.0025	0.00250	1.00005	0.00250	0.4000	0.00250	1.00005	0.00250	0.4000
0.0026	0.00260	1.00005	0.00260	0.3846	0.00260	1.00005	0.00260	0.3846
0.0027	0.00270	1.00005	0.00270	0.3704	0.00270	1.00005	0.00270	0.3704
0.0028	0.00280	1.00005	0.00280	0.3571	0.00280	1.00005	0.00280	0.3571
0.0029	0.00290	1.00005	0.00290	0.3448	0.00290	1.00005	0.00290	0.3448
0.0030	0.00300	1.00005	0.00300	0.3333	0.00300	1.00005	0.00300	0.3333
0.0031	0.00310	1.00005	0.00310	0.3226	0.00310	1.00005	0.00310	0.3226
0.0032	0.00320	1.00005	0.00320	0.3125	0.00320	1.00005	0.00320	0.3125
0.0033	0.00330	1.00005	0.00330	0.3028	0.00330	1.00005	0.00330	0.3028
0.0034	0.00340	1.00005	0.00340	0.2936	0.00340	1.00005	0.00340	0.2936
0.0035	0.00350	1.00005	0.00350	0.2848	0.00350	1.00005	0.00350	0.2848
0.0036	0.00360	1.00005	0.00360	0.2764	0.00360	1.00005	0.00360	0.2764
0.0037	0.00370	1.00005	0.00370	0.2683	0.00370	1.00005	0.00370	0.2683
0.0038	0.00380	1.00005	0.00380	0.2606	0.00380	1.00005	0.00380	0.2606
0.0039	0.00390	1.00005	0.00390	0.2532	0.00390	1.00005	0.00390	0.2532
0.0040	0.00400	1.00005	0.00400	0.2461	0.00400	1.00005	0.00400	0.2461
0.0041	0.00410	1.00005	0.00410	0.2393	0.00410	1.00005	0.00410	0.2393
0.0042	0.00420	1.00005	0.00420	0.2328	0.00420	1.00005	0.00420	0.2328
0.0043	0.00430	1.00005	0.00430	0.2265	0.00430	1.00005	0.00430	0.2265
0.0044	0.00440	1.00005	0.00440	0.2204	0.00440	1.00005	0.00440	0.2204
0.0045	0.00450	1.00005	0.00450	0.2145	0.00450	1.00005	0.00450	0.2145
0.0046	0.00460	1.00005	0.00460	0.2087	0.00460	1.00005	0.00460	0.2087
0.0047	0.00470	1.00005	0.00470	0.2031	0.00470	1.00005	0.00470	0.2031
0.0048	0.00480	1.00005	0.00480	0.1976	0.00480	1.00005	0.00480	0.1976
0.0049	0.00490	1.00005	0.00490	0.1922	0.00490	1.00005	0.00490	0.1922
0.0050	0.00500	1.00005	0.00500	0.1870	0.00500	1.00005	0.00500	0.1870
0.0051	0.00510	1.00005	0.00510	0.1818	0.00510	1.00005	0.00510	0.1818
0.0052	0.00520	1.00005	0.00520	0.1768	0.00520	1.00005	0.00520	0.1768
0.0053	0.00530	1.00005	0.00530	0.1718	0.00530	1.00005	0.00530	0.1718
0.0054	0.00540	1.00005	0.00540	0.1670	0.00540	1.00005	0.00540	0.1670
0.0055	0.00550	1.00005	0.00550	0.1622	0.00550	1.00005	0.00550	0.1622
0.0056	0.00560	1.00005	0.00560	0.1576	0.00560	1.00005	0.00560	0.1576
0.0057	0.00570	1.00005	0.00570	0.1530	0.00570	1.00005	0.00570	0.1530
0.0058	0.00580	1.00005	0.00580	0.1485	0.00580	1.00005	0.00580	0.1485
0.0059	0.00590	1.00005	0.00590	0.1441	0.00590	1.00005	0.00590	0.1441
0.0060	0.00600	1.00005	0.00600	0.1397	0.00600	1.00005	0.00600	0.1397
0.0061	0.00610	1.00005	0.00610	0.1354	0.00610	1.00005	0.00610	0.1354
0.0062	0.00620	1.00005	0.00620	0.1312	0.00620	1.00005	0.00620	0.1312
0.0063	0.00630	1.00005	0.00630	0.1270	0.00630	1.00005	0.00630	0.1270
0.0064	0.00640	1.00005	0.00640	0.1229	0.00640	1.00005	0.00640	0.1229
0.0065	0.00650	1.00005	0.00650	0.1188	0.00650	1.00005	0.00650	0.1188
0.0066	0.00660	1.00005	0.00660	0.1148	0.00660	1.00005	0.00660	0.1148
0.0067	0.00670	1.00005	0.00670	0.1108	0.00670	1.00005	0.00670	0.1108
0.0068	0.00680	1.00005	0.00680	0.1069	0.00680	1.00005	0.00680	0.1069
0.0069	0.00690	1.00005	0.00690	0.1030	0.00690	1.00005	0.00690	0.1030
0.0070	0.00700	1.00005	0.00700	0.0991	0.00700	1.00005	0.00700	0.0991
0.0071	0.00710	1.00005	0.00710	0.0953	0.00710	1.00005	0.00710	0.0953
0.0072	0.00720	1.00005	0.00720	0.0915	0.00720	1.00005	0.00720	0.0915
0.0073	0.00730	1.00005	0.00730	0.0878	0.00730	1.00005	0.00730	0.0878
0.0074	0.00740	1.00005	0.00740	0.0841	0.00740	1.00005	0.00740	0.0841
0.0075	0.00750	1.00005	0.00750	0.0805	0.00750	1.00005	0.00750	0.0805
0.0076	0.00760	1.00005	0.00760	0.0769	0.00760	1.00005	0.00760	0.0769
0.0077	0.00770	1.00005	0.00770	0.0734	0.00770	1.00005	0.00770	0.0734
0.0078	0.00780	1.00005	0.00780	0.0699	0.00780	1.00005	0.00780	0.0699
0.0079	0.00790	1.00005	0.00790	0.0665	0.00790	1.00005	0.00790	0.0665
0.0080	0.00800	1.00005	0.00800	0.0631	0.00800	1.00005	0.00800	0.0631
0.0081	0.00810	1.00005	0.00810	0.0598	0.00810	1.00005	0.00810	0.0598
0.0082	0.00820	1.00005	0.00820	0.0565	0.00820	1.00005	0.00820	0.0565
0.0083	0.00830	1.00005	0.00830	0.0533	0.00830	1.00005	0.00830	0.0533
0.0084	0.00840	1.00005	0.00840	0.0501	0.00840	1.00005	0.00840	0.0501
0.0085	0.00850	1.00005	0.00850	0.0470	0.00850	1.00005	0.00850	0.0470
0.0086	0.00860	1.00005	0.00860	0.0439	0.00860	1.00005	0.00860	0.0439
0.0087	0.00870	1.00005	0.00870	0.0409	0.00870	1.00005	0.00870	0.0409
0.0088	0.00880	1.00005	0.00880	0.0379	0.00880	1.00005	0.00880	0.0379
0.0089	0.00890	1.00005	0.00890	0.0350	0.00890	1.00005	0.00890	0.0350
0.0090	0.00900	1.00005	0.00900	0.0321	0.00900	1.00005	0.00900	0.0321
0.0091	0.00910	1.00005	0.00910	0.0292	0.00910	1.00005	0.00910	0.0292
0.0092	0.00920	1.00005	0.00920	0.0264	0.00920	1.00005	0.00920	0.0264
0.0093	0.00930	1.00005	0.00930	0.0236	0.00930	1.00005	0.00930	0.0236
0.0094	0.00940	1.00005	0.00940	0.0208	0.00940	1.00005	0.00940	0.0208
0.0095	0.00950	1.00005	0.00950	0.0181	0.00950	1.00005	0.00950	0.0181
0.0096	0.00960	1.00005	0.00960	0.0154	0.00960	1.00005	0.00960	0.0154
0.0097	0.00970	1.00005	0.00970	0.0128	0.00970	1.00005	0.00970	0.0128
0.0098	0.00980	1.00005	0.00980	0.0102	0.00980	1.00005	0.00980	0.0102
0.0099	0.00990	1.00005	0.00990	0.0077	0.00990	1.00005	0.00990	0.0077
0.0100	0.01000	1.00005	0.01000	0.0052	0.01000	1.00005	0.01000	0.0052

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
0.0150	0.01500	10,0	1.00011	0,2	0.01500	10,0	66.672	444,4
.0151	.01510		.00011		.01510		66.230	438,5
.0152	.01520		.00012		.01520		65.795	432,6
.0153	.01530		.00012		.01530		65.363	427,2
.0154	.01540		.00012		.01540		64.930	421,6
0.0155	0.01550	10,0	1.00012	0,2	0.01550	10,0	64.521	416,2
.0156	.01560		.00012		.01560		64.108	410,9
.0157	.01570		.00012		.01570		63.699	405,7
.0158	.01580		.00012		.01580		63.295	400,5
.0159	.01590		.00013		.01590		62.898	395,5
0.0160	0.01600	10,0	1.00013	0,2	0.01600	10,0	62.505	390,6
.0161	.01610		.00013		.01610		62.117	385,8
.0162	.01620		.00013		.01620		61.734	381,0
.0163	.01630		.00013		.01630		61.355	376,3
.0164	.01640		.00013		.01640		60.981	371,8
0.0165	0.01650	10,0	1.00014	0,2	0.01650	10,0	60.612	367,3
.0166	.01660		.00014		.01660		60.247	362,9
.0167	.01670		.00014		.01670		59.886	358,5
.0168	.01680		.00014		.01680		59.529	354,3
.0169	.01690		.00014		.01690		59.177	350,1
0.0170	0.01700	10,0	1.00014	0,2	0.01700	10,0	58.829	346,0
.0171	.01710		.00015		.01710		58.485	342,0
.0172	.01720		.00015		.01720		58.145	338,0
.0173	.01730		.00015		.01730		57.809	334,1
.0174	.01740		.00015		.01740		57.477	330,3
0.0175	0.01750	10,0	1.00015	0,2	0.01750	10,0	57.149	326,5
.0176	.01760		.00015		.01760		56.824	322,8
.0177	.01770		.00016		.01770		56.503	319,2
.0178	.01780		.00016		.01780		56.185	315,6
.0179	.01790		.00016		.01790		55.872	312,1
0.0180	0.01800	10,0	1.00016	0,2	0.01800	10,0	55.562	308,6
.0181	.01810		.00016		.01810		55.255	305,2
.0182	.01820		.00017		.01820		54.951	301,9
.0183	.01830		.00017		.01830		54.651	298,6
.0184	.01840		.00017		.01840		54.354	295,3
0.0185	0.01850	10,0	1.00017	0,2	0.01850	10,0	54.060	292,2
.0186	.01860		.00017		.01860		53.770	289,0
.0187	.01870		.00017		.01870		53.482	285,9
.0188	.01880		.00018		.01880		53.198	282,9
.0189	.01890		.00018		.01890		52.916	279,9
0.0190	0.01900	10,0	1.00018	0,2	0.01900	10,0	52.638	277,0
.0191	.01910		.00018		.01910		52.362	274,1
.0192	.01920		.00018		.01920		52.090	271,2
.0193	.01930		.00019		.01930		51.820	268,4
.0194	.01940		.00019		.01940		51.553	265,7
0.0195	0.01950	10,0	1.00019	0,2	0.01950	10,0	51.289	263,0
.0196	.01960		.00019		.01960		51.027	260,3
.0197	.01970		.00019		.01970		50.768	257,6
.0198	.01980		.00020		.01980		50.512	255,0
.0199	.01990		.00020		.01990		50.258	252,5
0.0200	0.02000	10,0	1.00020	0,2	0.02000	10,0	50.007	250,0
u	tanh u	= F ₁ '	sech u	= F ₂ '	sinh u	= F ₃ '	cosh u	= F ₄ '

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
0.0000	0.00000	1.00000	0.00000	∞	0.00000	1.00000	0.00000	∞
0.0010	0.00100	1.00000	0.00100	1.00000	0.00100	1.00000	0.00100	1.00000
0.0020	0.00200	1.00000	0.00200	0.50000	0.00200	1.00000	0.00200	0.50000
0.0030	0.00300	1.00000	0.00300	0.33333	0.00300	1.00000	0.00300	0.33333
0.0040	0.00400	1.00000	0.00400	0.25000	0.00400	1.00000	0.00400	0.25000
0.0050	0.00500	1.00000	0.00500	0.20000	0.00500	1.00000	0.00500	0.20000
0.0060	0.00600	1.00000	0.00600	0.16667	0.00600	1.00000	0.00600	0.16667
0.0070	0.00700	1.00000	0.00700	0.14286	0.00700	1.00000	0.00700	0.14286
0.0080	0.00800	1.00000	0.00800	0.12500	0.00800	1.00000	0.00800	0.12500
0.0090	0.00900	1.00000	0.00900	0.11111	0.00900	1.00000	0.00900	0.11111
0.0100	0.01000	1.00000	0.01000	0.10000	0.01000	1.00000	0.01000	0.10000
0.0110	0.01100	1.00000	0.01100	0.09091	0.01100	1.00000	0.01100	0.09091
0.0120	0.01200	1.00000	0.01200	0.08333	0.01200	1.00000	0.01200	0.08333
0.0130	0.01300	1.00000	0.01300	0.07692	0.01300	1.00000	0.01300	0.07692
0.0140	0.01400	1.00000	0.01400	0.07143	0.01400	1.00000	0.01400	0.07143
0.0150	0.01500	1.00000	0.01500	0.06667	0.01500	1.00000	0.01500	0.06667
0.0160	0.01600	1.00000	0.01600	0.06250	0.01600	1.00000	0.01600	0.06250
0.0170	0.01700	1.00000	0.01700	0.05882	0.01700	1.00000	0.01700	0.05882
0.0180	0.01800	1.00000	0.01800	0.05556	0.01800	1.00000	0.01800	0.05556
0.0190	0.01900	1.00000	0.01900	0.05263	0.01900	1.00000	0.01900	0.05263
0.0200	0.02000	1.00000	0.02000	0.05000	0.02000	1.00000	0.02000	0.05000
0.0210	0.02100	1.00000	0.02100	0.04762	0.02100	1.00000	0.02100	0.04762
0.0220	0.02200	1.00000	0.02200	0.04545	0.02200	1.00000	0.02200	0.04545
0.0230	0.02300	1.00000	0.02300	0.04348	0.02300	1.00000	0.02300	0.04348
0.0240	0.02400	1.00000	0.02400	0.04167	0.02400	1.00000	0.02400	0.04167
0.0250	0.02500	1.00000	0.02500	0.03999	0.02500	1.00000	0.02500	0.03999
0.0260	0.02600	1.00000	0.02600	0.03846	0.02600	1.00000	0.02600	0.03846
0.0270	0.02700	1.00000	0.02700	0.03704	0.02700	1.00000	0.02700	0.03704
0.0280	0.02800	1.00000	0.02800	0.03571	0.02800	1.00000	0.02800	0.03571
0.0290	0.02900	1.00000	0.02900	0.03448	0.02900	1.00000	0.02900	0.03448
0.0300	0.03000	1.00000	0.03000	0.03333	0.03000	1.00000	0.03000	0.03333
0.0310	0.03100	1.00000	0.03100	0.03226	0.03100	1.00000	0.03100	0.03226
0.0320	0.03200	1.00000	0.03200	0.03125	0.03200	1.00000	0.03200	0.03125
0.0330	0.03300	1.00000	0.03300	0.03028	0.03300	1.00000	0.03300	0.03028
0.0340	0.03400	1.00000	0.03400	0.02935	0.03400	1.00000	0.03400	0.02935
0.0350	0.03500	1.00000	0.03500	0.02845	0.03500	1.00000	0.03500	0.02845
0.0360	0.03600	1.00000	0.03600	0.02758	0.03600	1.00000	0.03600	0.02758
0.0370	0.03700	1.00000	0.03700	0.02674	0.03700	1.00000	0.03700	0.02674
0.0380	0.03800	1.00000	0.03800	0.02592	0.03800	1.00000	0.03800	0.02592
0.0390	0.03900	1.00000	0.03900	0.02512	0.03900	1.00000	0.03900	0.02512
0.0400	0.04000	1.00000	0.04000	0.02434	0.04000	1.00000	0.04000	0.02434
0.0410	0.04100	1.00000	0.04100	0.02358	0.04100	1.00000	0.04100	0.02358
0.0420	0.04200	1.00000	0.04200	0.02283	0.04200	1.00000	0.04200	0.02283
0.0430	0.04300	1.00000	0.04300	0.02210	0.04300	1.00000	0.04300	0.02210
0.0440	0.04400	1.00000	0.04400	0.02138	0.04400	1.00000	0.04400	0.02138
0.0450	0.04500	1.00000	0.04500	0.02068	0.04500	1.00000	0.04500	0.02068
0.0460	0.04600	1.00000	0.04600	0.01999	0.04600	1.00000	0.04600	0.01999
0.0470	0.04700	1.00000	0.04700	0.01931	0.04700	1.00000	0.04700	0.01931
0.0480	0.04800	1.00000	0.04800	0.01865	0.04800	1.00000	0.04800	0.01865
0.0490	0.04900	1.00000	0.04900	0.01800	0.04900	1.00000	0.04900	0.01800
0.0500	0.05000	1.00000	0.05000	0.01736	0.05000	1.00000	0.05000	0.01736
0.0510	0.05100	1.00000	0.05100	0.01673	0.05100	1.00000	0.05100	0.01673
0.0520	0.05200	1.00000	0.05200	0.01611	0.05200	1.00000	0.05200	0.01611
0.0530	0.05300	1.00000	0.05300	0.01550	0.05300	1.00000	0.05300	0.01550
0.0540	0.05400	1.00000	0.05400	0.01490	0.05400	1.00000	0.05400	0.01490
0.0550	0.05500	1.00000	0.05500	0.01431	0.05500	1.00000	0.05500	0.01431
0.0560	0.05600	1.00000	0.05600	0.01373	0.05600	1.00000	0.05600	0.01373
0.0570	0.05700	1.00000	0.05700	0.01316	0.05700	1.00000	0.05700	0.01316
0.0580	0.05800	1.00000	0.05800	0.01260	0.05800	1.00000	0.05800	0.01260
0.0590	0.05900	1.00000	0.05900	0.01205	0.05900	1.00000	0.05900	0.01205
0.0600	0.06000	1.00000	0.06000	0.01151	0.06000	1.00000	0.06000	0.01151
0.0610	0.06100	1.00000	0.06100	0.01098	0.06100	1.00000	0.06100	0.01098
0.0620	0.06200	1.00000	0.06200	0.01046	0.06200	1.00000	0.06200	0.01046
0.0630	0.06300	1.00000	0.06300	0.00995	0.06300	1.00000	0.06300	0.00995
0.0640	0.06400	1.00000	0.06400	0.00945	0.06400	1.00000	0.06400	0.00945
0.0650	0.06500	1.00000	0.06500	0.00896	0.06500	1.00000	0.06500	0.00896
0.0660	0.06600	1.00000	0.06600	0.00848	0.06600	1.00000	0.06600	0.00848
0.0670	0.06700	1.00000	0.06700	0.00801	0.06700	1.00000	0.06700	0.00801
0.0680	0.06800	1.00000	0.06800	0.00755	0.06800	1.00000	0.06800	0.00755
0.0690	0.06900	1.00000	0.06900	0.00710	0.06900	1.00000	0.06900	0.00710
0.0700	0.07000	1.00000	0.07000	0.00666	0.07000	1.00000	0.07000	0.00666
0.0710	0.07100	1.00000	0.07100	0.00623	0.07100	1.00000	0.07100	0.00623
0.0720	0.07200	1.00000	0.07200	0.00581	0.07200	1.00000	0.07200	0.00581
0.0730	0.07300	1.00000	0.07300	0.00540	0.07300	1.00000	0.07300	0.00540
0.0740	0.07400	1.00000	0.07400	0.00500	0.07400	1.00000	0.07400	0.00500
0.0750	0.07500	1.00000	0.07500	0.00461	0.07500	1.00000	0.07500	0.00461
0.0760	0.07600	1.00000	0.07600	0.00423	0.07600	1.00000	0.07600	0.00423
0.0770	0.07700	1.00000	0.07700	0.00386	0.07700	1.00000	0.07700	0.00386
0.0780	0.07800	1.00000	0.07800	0.00350	0.07800	1.00000	0.07800	0.00350
0.0790	0.07900	1.00000	0.07900	0.00315	0.07900	1.00000	0.07900	0.00315
0.0800	0.08000	1.00000	0.08000	0.00281	0.08000	1.00000	0.08000	0.00281
0.0810	0.08100	1.00000	0.08100	0.00248	0.08100	1.00000	0.08100	0.00248
0.0820	0.08200	1.00000	0.08200	0.00216	0.08200	1.00000	0.08200	0.00216
0.0830	0.08300	1.00000	0.08300	0.00185	0.08300	1.00000	0.08300	0.00185
0.0840	0.08400	1.00000	0.08400	0.00155	0.08400	1.00000	0.08400	0.00155
0.0850	0.08500	1.00000	0.08500	0.00126	0.08500	1.00000	0.08500	0.00126
0.0860	0.08600	1.00000	0.08600	0.00098	0.08600	1.00000	0.08600	0.00098
0.0870	0.08700	1.00000	0.08700	0.00071	0.08700	1.00000	0.08700	0.00071
0.0880	0.08800	1.00000	0.08800	0.00045	0.08800	1.00000	0.08800	0.00045
0.0890	0.08900	1.00000	0.08900	0.00020	0.08900	1.00000	0.08900	0.00020
0.0900	0.09000	1.00000	0.09000	0.00000	0.09000	1.00000	0.09000	0.00000
0.0910	0.09100	1.00000	0.09100	0.00000	0.09100	1.00000	0.09100	0.00000
0.0920	0.09200	1.00000	0.09200	0.00000	0.09200	1.00000	0.09200	0.00000
0.0930	0.09300	1.00000	0.09300	0.00000	0.09300	1.00000	0.09300	0.00000
0.0940	0.09400	1.00000	0.09400	0.00000	0.09400	1.00000	0.09400	0.00000
0.0950	0.09500	1.00000	0.09500	0.00000	0.09500	1.00000	0.09500	0.00000
0.0960	0.09600	1.00000	0.09600	0.00000	0.09600	1.00000	0.09600	0.00000
0.0970	0.09700	1.00000	0.09700	0.00000	0.09700	1.00000	0.09700	0.00000
0.0980	0.09800	1.00000	0.09800	0.00000	0.09800	1.00000	0.09800	0.00000
0.0990	0.09900	1.00000	0.09900	0.00000	0.09900	1.00000	0.09900	0.00000
0.1000	0.10000	1.00000	0.10000	0.00000	0.10000	1.00000	0.10000	0.00000

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	sinh u	= F ₁ '	cosh u	= F ₂ '
0.0250 .0251 .0252 .0253 .0254	0.02500 .02510 .02520 .02530 .02540	10.0	1.00031 1.00032 1.00033 1.00034 1.00035	0.3	0.02510 .02519 .02529 .02539 .02549	10.0	40.048 20.829 20.649 20.541 20.479	164.0 158.7 157.4 156.4 155.0
0.0255 .0256 .0257 .0258 .0259	0.02550 .02560 .02570 .02580 .02590	10.0	1.00033 1.00033 1.00033 1.00033 1.00034	0.3	0.02549 .02559 .02569 .02579 .02589	10.0	20.221 20.071 20.019 20.168 20.019	153.8 152.0 151.4 150.2 149.0
0.0260 .0261 .0262 .0263 .0264	0.02600 .02610 .02620 .02630 .02640	10.0	1.00034 1.00034 1.00034 1.00035 1.00035	0.3	0.02599 .02609 .02619 .02629 .02639	10.0	20.179 20.121 20.177 20.021 20.088	147.0 146.8 145.7 144.5 143.4
0.0265 .0266 .0267 .0268 .0269	0.02650 .02660 .02670 .02680 .02690	10.0	1.00035 1.00035 1.00035 1.00035 1.00035	0.3	0.02649 .02659 .02669 .02679 .02689	10.0	27.745 27.003 27.002 27.322 27.081	143.1 141.2 140.2 139.2 138.2
0.0270 .0271 .0272 .0273 .0274	0.02700 .02710 .02720 .02730 .02740	10.0	1.00035 1.00037 1.00037 1.00037 1.00038	0.3	0.02699 .02709 .02719 .02729 .02739	10.0	27.020 26.929 26.773 26.691 26.568	137.7 136.1 135.1 134.0 133.2
0.0275 .0276 .0277 .0278 .0279	0.02750 .02760 .02770 .02780 .02790	10.0	1.00038 1.00038 1.00038 1.00039 1.00039	0.3	0.02749 .02759 .02769 .02779 .02789	10.0	26.473 26.211 26.100 25.989 25.852	132.2 131.2 130.3 129.1 128.4
0.0280 .0281 .0282 .0283 .0284	0.02800 .02810 .02820 .02830 .02840	10.0	1.00039 1.00039 1.00040 1.00040 1.00040	0.3	0.02799 .02809 .02819 .02829 .02839	10.0	25.724 25.560 25.479 25.345 25.241	127.5 126.0 125.7 124.8 124.0
0.0285 .0286 .0287 .0288 .0289	0.02850 .02860 .02870 .02880 .02890	10.0	1.00041 1.00041 1.00041 1.00041 1.00042	0.3	0.02849 .02859 .02869 .02879 .02889	10.0	25.097 24.925 24.853 24.722 24.622	121.1 120.2 119.4 118.5 117.7
0.0290 .0291 .0292 .0293 .0294	0.02900 .02910 .02920 .02930 .02940	10.0	1.00042 1.00042 1.00043 1.00043 1.00043	0.3	0.02899 .02909 .02919 .02929 .02939	10.0	24.492 24.374 24.290 24.139 24.023	116.0 115.1 114.2 113.4 112.7
0.0295 .0296 .0297 .0298 .0299	0.02950 .02960 .02970 .02980 .02990	10.0	1.00044 1.00044 1.00044 1.00044 1.00045	0.3	0.02949 .02959 .02969 .02979 .02989	10.0	23.068 22.794 22.689 22.567 22.455	111.0 110.1 109.3 108.6 107.8
0.0300	0.03000	10.0	1.00045	0.3	0.02999	10.0	22.343	111.1
u	tan gd u	= F ₁ '	sec gd u	= F ₂ '	sinh u	= F ₁ '	cosh u	= F ₂ '

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.0300	0.03000	10.0	1.00015	0.3	0.02999	10.0	33.311	31.1
.0301	.03010		.00015		.03000		33.313	31.0
.0302	.03020		.00016		.03009		33.315	30.9
.0303	.03030		.00016		.03019		33.317	30.8
.0304	.03040		.00016		.03029		33.319	30.7
0.0305	0.03050	10.0	1.00017	0.3	0.03049	10.0	33.320	30.5
.0306	.03060		.00017		.03059		33.322	30.4
.0307	.03070		.00017		.03069		33.324	30.3
.0308	.03080		.00017		.03079		33.326	30.2
.0309	.03090		.00018		.03089		33.328	30.1
0.0310	0.03100	10.0	1.00018	0.3	0.03099	10.0	33.329	30.0
.0311	.03111		.00018		.03109		33.331	29.9
.0312	.03121		.00019		.03119		33.332	29.8
.0313	.03131		.00019		.03129		33.334	29.7
.0314	.03141		.00019		.03139		33.335	29.6
0.0315	0.03151	10.0	1.00019	0.3	0.03149	10.0	33.337	29.5
.0316	.03161		.00019		.03159		33.339	29.4
.0317	.03171		.00020		.03169		33.340	29.3
.0318	.03181		.00021		.03179		33.342	29.2
.0319	.03191		.00021		.03189		33.343	29.1
0.0320	0.03201	10.0	1.00021	0.3	0.03199	10.0	33.344	29.0
.0321	.03211		.00021		.03209		33.346	28.9
.0322	.03221		.00022		.03219		33.347	28.8
.0323	.03231		.00022		.03229		33.349	28.7
.0324	.03241		.00022		.03239		33.350	28.6
0.0325	0.03251	10.0	1.00023	0.3	0.03249	10.0	33.351	28.5
.0326	.03261		.00023		.03259		33.352	28.4
.0327	.03271		.00023		.03269		33.354	28.3
.0328	.03281		.00024		.03279		33.355	28.2
.0329	.03291		.00024		.03289		33.356	28.1
0.0330	0.03301	10.0	1.00024	0.3	0.03299	10.0	33.357	28.0
.0331	.03311		.00025		.03309		33.358	27.9
.0332	.03321		.00025		.03319		33.359	27.8
.0333	.03331		.00025		.03329		33.360	27.7
.0334	.03341		.00025		.03339		33.361	27.6
0.0335	0.03351	10.0	1.00026	0.3	0.03349	10.0	33.362	27.5
.0336	.03361		.00026		.03359		33.363	27.4
.0337	.03371		.00027		.03369		33.364	27.3
.0338	.03381		.00027		.03379		33.365	27.2
.0339	.03391		.00027		.03389		33.366	27.1
0.0340	0.03401	10.0	1.00028	0.3	0.03399	10.0	33.367	27.0
.0341	.03411		.00028		.03409		33.368	26.9
.0342	.03421		.00028		.03419		33.369	26.8
.0343	.03431		.00029		.03429		33.370	26.7
.0344	.03441		.00029		.03439		33.371	26.6
0.0345	0.03451	10.0	1.00029	0.3	0.03449	10.0	33.372	26.5
.0346	.03461		.00029		.03459		33.373	26.4
.0347	.03471		.00030		.03469		33.374	26.3
.0348	.03481		.00031		.03479		33.375	26.2
.0349	.03491		.00031		.03489		33.376	26.1
0.0350	0.03501	10.0	1.00031	0.4	0.03499	10.0	33.377	26.0
u	$\tanh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\sinh u$	$= F_3'$	$\coth u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.0350	0.03501	10.0	1.00061	0.4	0.03499	10.0	28.583	81.6
.0351	.03511		.00062		.03500		28.592	81.1
.0352	.03521		.00062		.03510		28.621	80.7
.0353	.03531		.00063		.03520		28.649	80.2
.0354	.03541		.00063		.03530		28.676	79.8
0.0355	0.03551	10.0	1.00063	0.4	0.03540	10.0	28.681	79.3
.0356	.03561		.00063		.03550		28.692	78.9
.0357	.03571		.00064		.03560		28.693	78.4
.0358	.03581		.00064		.03570		27.695	78.0
.0359	.03591		.00064		.03580		27.697	77.6
0.0360	0.03601	10.0	1.00065	0.4	0.03598	10.0	27.700	77.1
.0361	.03611		.00065		.03608		27.711	76.7
.0362	.03621		.00066		.03618		27.696	76.3
.0363	.03631		.00066		.03628		27.696	75.9
.0364	.03641		.00066		.03638		27.683	75.4
0.0365	0.03651	10.0	1.00067	0.4	0.03648	10.0	27.699	75.0
.0366	.03661		.00067		.03658		27.695	74.6
.0367	.03671		.00067		.03668		27.690	74.2
.0368	.03681		.00068		.03678		27.685	73.8
.0369	.03691		.00068		.03688		27.681	73.4
0.0370	0.03701	10.0	1.00068	0.4	0.03698	10.0	27.690	73.0
.0371	.03711		.00069		.03708		27.697	72.6
.0372	.03721		.00069		.03718		27.694	72.2
.0373	.03731		.00070		.03728		27.692	71.8
.0374	.03741		.00070		.03738		27.690	71.5
0.0375	0.03751	10.0	1.00070	0.4	0.03748	10.0	27.699	71.1
.0376	.03761		.00071		.03758		27.693	70.7
.0377	.03771		.00071		.03768		27.693	70.3
.0378	.03781		.00071		.03778		27.690	70.0
.0379	.03791		.00072		.03788		27.698	69.6
0.0380	0.03801	10.0	1.00072	0.4	0.03798	10.0	27.698	69.2
.0381	.03811		.00073		.03808		27.699	68.8
.0382	.03821		.00073		.03818		27.691	68.5
.0383	.03831		.00073		.03828		27.692	68.1
.0384	.03841		.00074		.03838		27.694	67.8
0.0385	0.03851	10.0	1.00074	0.4	0.03848	10.0	27.687	67.4
.0386	.03861		.00075		.03858		27.690	67.1
.0387	.03871		.00075		.03868		27.693	66.7
.0388	.03881		.00075		.03878		27.695	66.4
.0389	.03891		.00076		.03888		27.690	66.1
0.0390	0.03901	10.0	1.00076	0.4	0.03898	10.0	27.694	65.7
.0391	.03911		.00076		.03908		27.698	65.4
.0392	.03921		.00077		.03918		27.691	65.0
.0393	.03931		.00077		.03928		27.695	64.7
.0394	.03941		.00078		.03938		27.694	64.4
0.0395	0.03951	10.0	1.00078	0.4	0.03948	10.0	27.690	64.1
.0396	.03961		.00078		.03958		27.695	63.7
.0397	.03971		.00079		.03968		27.692	63.4
.0398	.03981		.00079		.03978		27.690	63.1
.0399	.03991		.00080		.03988		27.690	62.8
0.0400	0.04001	10.0	1.00080	0.4	0.03998	10.0	27.693	62.5
u	$\tan gd u$	$= F_1'$	$\sec gd u$	$= F_2'$	$\sin gd u$	$= F_3'$	$\csc gd u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁	cosh u	= F ₂	tanh u	= F ₃	coth u	= F ₄
0.0000	0.00001	10.0	1.00080	0.4	0.00080	10.0	25.013	64.5
0.001	0.00101		0.00080		0.00080		24.951	64.2
0.002	0.00201		0.00081		0.00160		24.889	63.8
0.003	0.00301		0.00081		0.00240		24.827	63.5
0.004	0.00401		0.00082		0.00320		24.766	63.2
0.005	0.00501	10.0	1.00082	0.4	0.00400	10.0	24.705	62.8
0.006	0.00601		0.00082		0.00480		24.644	62.6
0.007	0.00701		0.00083		0.00560		24.584	62.3
0.008	0.00801		0.00083		0.00640		24.523	62.0
0.009	0.00901		0.00084		0.00720		24.464	61.7
0.010	0.01001	10.0	1.00084	0.4	0.01000	10.0	24.404	61.5
0.011	0.01101		0.00084		0.01080		24.345	61.2
0.012	0.01201		0.00085		0.01160		24.285	60.9
0.013	0.01301		0.00085		0.01240		24.227	60.7
0.014	0.01401		0.00085		0.01320		24.168	60.5
0.015	0.01501	10.0	1.00085	0.4	0.01400	10.0	24.110	60.2
0.016	0.01601		0.00087		0.01480		24.052	59.8
0.017	0.01701		0.00087		0.01560		23.995	59.5
0.018	0.01801		0.00087		0.01640		23.937	59.2
0.019	0.01901		0.00088		0.01720		23.880	58.9
0.020	0.02001	10.0	1.00088	0.4	0.02000	10.0	23.824	58.7
0.021	0.02101		0.00089		0.02080		23.767	58.4
0.022	0.02201		0.00089		0.02160		23.711	58.1
0.023	0.02301		0.00089		0.02240		23.655	57.8
0.024	0.02401		0.00090		0.02320		23.599	57.6
0.025	0.02501	10.0	1.00090	0.4	0.02400	10.0	23.544	57.3
0.026	0.02601		0.00091		0.02480		23.488	57.1
0.027	0.02701		0.00091		0.02560		23.433	56.8
0.028	0.02801		0.00092		0.02640		23.379	56.6
0.029	0.02901		0.00092		0.02720		23.324	56.3
0.030	0.03001	10.0	1.00092	0.4	0.03000	10.0	23.270	56.0
0.031	0.03101		0.00093		0.03080		23.216	55.8
0.032	0.03201		0.00093		0.03160		23.163	55.6
0.033	0.03301		0.00094		0.03240		23.110	55.3
0.034	0.03401		0.00094		0.03320		23.056	55.1
0.035	0.03501	10.0	1.00095	0.4	0.03400	10.0	23.003	54.8
0.036	0.03601		0.00095		0.03480		22.950	54.6
0.037	0.03701		0.00095		0.03560		22.898	54.3
0.038	0.03801		0.00096		0.03640		22.846	54.1
0.039	0.03901		0.00096		0.03720		22.794	53.9
0.040	0.04001	10.0	1.00097	0.4	0.04000	10.0	22.742	53.6
0.041	0.04101		0.00097		0.04080		22.690	53.4
0.042	0.04201		0.00098		0.04160		22.639	53.2
0.043	0.04301		0.00098		0.04240		22.588	53.0
0.044	0.04401		0.00099		0.04320		22.537	52.7
0.045	0.04451	10.0	1.00099	0.4	0.04400	10.0	22.487	52.5
0.046	0.04501		0.00099		0.04480		22.435	52.2
0.047	0.04551		0.00100		0.04560		22.385	52.0
0.048	0.04601		0.00100		0.04640		22.335	41.8
0.049	0.04651		0.00101		0.04720		22.287	41.6
0.050	0.04702	10.0	1.00101	0.5	0.04800	10.0	22.237	41.3
u	ln gd u	= F ₁	sec gd u	= F ₂	sin gd u	= F ₃	csc gd u	= F ₄

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₂ '	cosh u	= F ₂ '	tanh u	= F ₂ '	coth u	= F ₂ '
0.0150	0.01502	10.01	1.000101	0.5	0.01507	10.01	22.237	40.3
0.0151	0.01512		1.000102		0.01507		22.238	40.3
0.0152	0.01522		1.000103		0.01517		22.239	40.0
0.0153	0.01532		1.000103		0.01527		22.240	40.7
0.0154	0.01542		1.000103		0.01537		22.242	40.5
0.0155	0.01552	10.01	1.000104	0.5	0.01547	10.01	21.993	40.3
0.0156	0.01562		1.000104		0.01557		21.945	40.1
0.0157	0.01572		1.000104		0.01567		21.897	40.8
0.0158	0.01582		1.000105		0.01577		21.849	40.6
0.0159	0.01592		1.000105		0.01587		21.802	40.4
0.0160	0.01602	10.01	1.000105	0.5	0.01597	10.01	21.754	40.2
0.0161	0.01612		1.000106		0.01607		21.707	40.0
0.0162	0.01622		1.000107		0.01617		21.660	40.8
0.0163	0.01632		1.000107		0.01627		21.612	40.6
0.0164	0.01642		1.000108		0.01637		21.567	40.4
0.0165	0.01652	10.01	1.000108	0.5	0.01647	10.01	21.521	40.2
0.0166	0.01662		1.000109		0.01657		21.475	40.0
0.0167	0.01672		1.000109		0.01667		21.429	40.8
0.0168	0.01682		1.000110		0.01677		21.383	40.6
0.0169	0.01692		1.000110		0.01687		21.338	40.4
0.0170	0.01702	10.01	1.000110	0.5	0.01697	10.01	21.292	40.2
0.0171	0.01712		1.000111		0.01707		21.247	40.0
0.0172	0.01722		1.000111		0.01717		21.202	40.8
0.0173	0.01732		1.000112		0.01727		21.157	40.6
0.0174	0.01742		1.000112		0.01736		21.113	40.5
0.0175	0.01752	10.01	1.000113	0.5	0.01746	10.01	21.068	40.3
0.0176	0.01762		1.000113		0.01756		21.022	40.1
0.0177	0.01772		1.000114		0.01766		20.976	40.9
0.0178	0.01782		1.000114		0.01776		20.930	40.7
0.0179	0.01792		1.000115		0.01786		20.885	40.5
0.0180	0.01802	10.01	1.000115	0.5	0.01796	10.01	20.840	40.3
0.0181	0.01812		1.000116		0.01806		20.795	40.1
0.0182	0.01822		1.000116		0.01816		20.750	40.9
0.0183	0.01832		1.000117		0.01826		20.705	40.7
0.0184	0.01842		1.000117		0.01836		20.660	40.5
0.0185	0.01852	10.01	1.000118	0.5	0.01846	10.01	20.615	40.3
0.0186	0.01862		1.000118		0.01856		20.570	40.1
0.0187	0.01872		1.000119		0.01866		20.525	40.9
0.0188	0.01882		1.000119		0.01876		20.480	40.7
0.0189	0.01892		1.000120		0.01886		20.435	40.5
0.0190	0.01902	10.01	1.000120	0.5	0.01896	10.01	20.421	40.3
0.0191	0.01912		1.000121		0.01906		20.383	40.1
0.0192	0.01922		1.000121		0.01916		20.348	40.9
0.0193	0.01932		1.000122		0.01926		20.300	40.7
0.0194	0.01942		1.000122		0.01936		20.259	40.5
0.0195	0.01952	10.01	1.000123	0.5	0.01946	10.01	20.219	40.3
0.0196	0.01962		1.000123		0.01956		20.178	40.1
0.0197	0.01972		1.000124		0.01966		20.137	40.9
0.0198	0.01982		1.000124		0.01976		20.097	40.7
0.0199	0.01992		1.000125		0.01986		20.057	40.5
0.0200	0.02002	10.01	1.000125	0.5	0.01996	10.01	20.017	40.3
u	sinh u	= F ₂ '	cosh u	= F ₂ '	tanh u	= F ₂ '	coth u	= F ₂ '

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.0500	0.05002	10.0	1.00125	0.5	0.05005	10.0	20.002	20.0
.0501	.05012		.00126		.05006		19.997	19.9
.0502	.05022		.00126		.05006		19.997	19.9
.0503	.05032		.00127		.05007		19.997	19.9
.0504	.05042		.00127		.05008		19.998	19.9
0.0505	0.05052	10.0	1.00128	0.5	0.05046	10.0	19.999	19.9
.0506	.05062		.00128		.05046		19.999	19.9
.0507	.05072		.00129		.05046		19.999	19.9
.0508	.05082		.00129		.05047		19.999	19.9
.0509	.05092		.00130		.05048		19.999	19.9
0.0510	0.05102	10.0	1.00130	0.5	0.05088	10.0	19.999	19.9
.0511	.05112		.00131		.05088		19.999	19.9
.0512	.05122		.00131		.05089		19.999	19.9
.0513	.05132		.00132		.05089		19.999	19.9
.0514	.05142		.00132		.05090		19.999	19.9
0.0515	0.05152	10.0	1.00133	0.5	0.05145	10.0	19.999	19.9
.0516	.05162		.00133		.05145		19.999	19.9
.0517	.05172		.00134		.05145		19.999	19.9
.0518	.05182		.00134		.05146		19.999	19.9
.0519	.05192		.00135		.05146		19.999	19.9
0.0520	0.05202	10.0	1.00135	0.5	0.05185	10.0	19.999	19.9
.0521	.05212		.00136		.05185		19.999	19.9
.0522	.05222		.00136		.05185		19.999	19.9
.0523	.05232		.00137		.05185		19.999	19.9
.0524	.05242		.00137		.05186		19.999	19.9
0.0525	0.05252	10.0	1.00138	0.5	0.05225	10.0	19.999	19.9
.0526	.05262		.00138		.05225		19.999	19.9
.0527	.05272		.00139		.05225		19.999	19.9
.0528	.05282		.00139		.05226		19.999	19.9
.0529	.05292		.00140		.05226		19.999	19.9
0.0530	0.05302	10.0	1.00140	0.5	0.05265	10.0	19.999	19.9
.0531	.05312		.00141		.05265		19.999	19.9
.0532	.05322		.00142		.05265		19.999	19.9
.0533	.05332		.00142		.05266		19.999	19.9
.0534	.05342		.00143		.05266		19.999	19.9
0.0535	0.05352	10.0	1.00143	0.5	0.05305	10.0	19.999	19.9
.0536	.05362		.00144		.05305		19.999	19.9
.0537	.05372		.00144		.05305		19.999	19.9
.0538	.05382		.00145		.05306		19.999	19.9
.0539	.05392		.00145		.05306		19.999	19.9
0.0540	0.05402	10.0	1.00146	0.5	0.05345	10.0	19.999	19.9
.0541	.05412		.00146		.05345		19.999	19.9
.0542	.05422		.00147		.05345		19.999	19.9
.0543	.05432		.00147		.05346		19.999	19.9
.0544	.05442		.00148		.05346		19.999	19.9
0.0545	0.05452	10.0	1.00149	0.5	0.05385	10.0	19.999	19.9
.0546	.05462		.00149		.05385		19.999	19.9
.0547	.05472		.00150		.05385		19.999	19.9
.0548	.05482		.00150		.05386		19.999	19.9
.0549	.05492		.00151		.05386		19.999	19.9
0.0550	0.05502	10.0	1.00151	0.5	0.05425	10.0	19.999	19.9
u	ln of u	= F ₁	exp of u	= F ₂	sin of u	= F ₃	cos of u	= F ₄

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.0550	0.055913	10.0	1.00151	0.0	0.05491	10.0	18.200	33.0
0.0551	0.05513		0.00152		0.05494		18.167	33.0
0.0552	0.05523		0.00152		0.05496		18.134	33.0
0.0553	0.05533		0.00153		0.05498		18.102	33.0
0.0554	0.05543		0.00153		0.05501		18.069	33.0
0.0555	0.05553	10.0	1.00154	0.0	0.05514	10.0	18.037	33.4
0.0556	0.05563		0.00155		0.05516		18.004	33.4
0.0557	0.05573		0.00155		0.05518		17.972	33.4
0.0558	0.05583		0.00156		0.05521		17.940	33.4
0.0559	0.05593		0.00156		0.05524		17.908	33.0
0.0560	0.05603	10.0	1.00157	0.0	0.05531	10.0	17.876	33.0
0.0561	0.05613		0.00157		0.05534		17.844	33.2
0.0562	0.05623		0.00158		0.05536		17.812	33.0
0.0563	0.05633		0.00159		0.05539		17.781	33.4
0.0564	0.05643		0.00159		0.05541		17.750	33.4
0.0565	0.05653	10.0	1.00160	0.0	0.05544	10.0	17.718	33.2
0.0566	0.05663		0.00161		0.05546		17.687	33.2
0.0567	0.05673		0.00161		0.05548		17.656	33.1
0.0568	0.05683		0.00161		0.05551		17.625	33.0
0.0569	0.05693		0.00162		0.05553		17.594	33.0
0.0570	0.05703	10.0	1.00162	0.0	0.05556	10.0	17.563	33.2
0.0571	0.05713		0.00163		0.05558		17.532	33.0
0.0572	0.05723		0.00163		0.05561		17.502	33.5
0.0573	0.05733		0.00164		0.05564		17.471	33.4
0.0574	0.05743		0.00165		0.05566		17.441	33.3
0.0575	0.05753	10.0	1.00165	0.0	0.05571	10.0	17.410	33.2
0.0576	0.05763		0.00166		0.05573		17.380	33.1
0.0577	0.05773		0.00167		0.05576		17.350	33.0
0.0578	0.05783		0.00167		0.05578		17.320	33.0
0.0579	0.05793		0.00168		0.05581		17.290	33.0
0.0580	0.05803	10.0	1.00168	0.0	0.05584	10.0	17.261	33.2
0.0581	0.05813		0.00169		0.05586		17.231	33.0
0.0582	0.05823		0.00169		0.05588		17.202	33.5
0.0583	0.05833		0.00170		0.05591		17.172	33.4
0.0584	0.05843		0.00171		0.05593		17.143	33.3
0.0585	0.05853	10.0	1.00171	0.0	0.05596	10.0	17.114	33.2
0.0586	0.05863		0.00172		0.05598		17.085	33.1
0.0587	0.05873		0.00172		0.05601		17.056	33.0
0.0588	0.05883		0.00173		0.05603		17.027	33.0
0.0589	0.05893		0.00174		0.05606		16.998	33.8
0.0590	0.05903	10.0	1.00174	0.0	0.05609	10.0	16.969	33.7
0.0591	0.05913		0.00175		0.05611		16.940	33.6
0.0592	0.05923		0.00175		0.05613		16.912	33.5
0.0593	0.05933		0.00176		0.05616		16.883	33.4
0.0594	0.05943		0.00176		0.05618		16.855	33.3
0.0595	0.05953	10.0	1.00177	0.0	0.05621	10.0	16.827	33.2
0.0596	0.05963		0.00178		0.05623		16.798	33.1
0.0597	0.05973		0.00178		0.05626		16.770	33.0
0.0598	0.05983		0.00179		0.05628		16.742	33.0
0.0599	0.05993		0.00179		0.05631		16.714	33.8
0.0600	0.06003	10.0	1.00180	0.0	0.05633	10.0	16.687	33.7
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

Natural Hyperbolic Functions.

u	sinh u	= F'	cosh u	= F'	tanh u	= F'	coth u	= F'
0.0000	0.00001	10.0	1.00000	0.0	0.00000	10.0	10.000	27.2
0.0001	0.00014		1.00000		0.00001		10.000	27.2
0.0002	0.00028		1.00000		0.00002		10.000	27.2
0.0003	0.00042		1.00000		0.00003		10.000	27.2
0.0004	0.00056		1.00000		0.00004		10.000	27.2
0.0005	0.00070		1.00000		0.00005		10.000	27.2
0.0006	0.00084		1.00000		0.00006		10.000	27.2
0.0007	0.00098		1.00000		0.00007		10.000	27.2
0.0008	0.00112		1.00000		0.00008		10.000	27.2
0.0009	0.00126		1.00000		0.00009		10.000	27.2
0.0010	0.00140		1.00000		0.00010		10.000	27.2
0.0011	0.00154		1.00000		0.00011		10.000	27.2
0.0012	0.00168		1.00000		0.00012		10.000	27.2
0.0013	0.00182		1.00000		0.00013		10.000	27.2
0.0014	0.00196		1.00000		0.00014		10.000	27.2
0.0015	0.00210		1.00000		0.00015		10.000	27.2
0.0016	0.00224		1.00000		0.00016		10.000	27.2
0.0017	0.00238		1.00000		0.00017		10.000	27.2
0.0018	0.00252		1.00000		0.00018		10.000	27.2
0.0019	0.00266		1.00000		0.00019		10.000	27.2
0.0020	0.00280		1.00000		0.00020		10.000	27.2
0.0021	0.00294		1.00000		0.00021		10.000	27.2
0.0022	0.00308		1.00000		0.00022		10.000	27.2
0.0023	0.00322		1.00000		0.00023		10.000	27.2
0.0024	0.00336		1.00000		0.00024		10.000	27.2
0.0025	0.00350		1.00000		0.00025		10.000	27.2
0.0026	0.00364		1.00000		0.00026		10.000	27.2
0.0027	0.00378		1.00000		0.00027		10.000	27.2
0.0028	0.00392		1.00000		0.00028		10.000	27.2
0.0029	0.00406		1.00000		0.00029		10.000	27.2
0.0030	0.00420		1.00000		0.00030		10.000	27.2
0.0031	0.00434		1.00000		0.00031		10.000	27.2
0.0032	0.00448		1.00000		0.00032		10.000	27.2
0.0033	0.00462		1.00000		0.00033		10.000	27.2
0.0034	0.00476		1.00000		0.00034		10.000	27.2
0.0035	0.00490		1.00000		0.00035		10.000	27.2
0.0036	0.00504		1.00000		0.00036		10.000	27.2
0.0037	0.00518		1.00000		0.00037		10.000	27.2
0.0038	0.00532		1.00000		0.00038		10.000	27.2
0.0039	0.00546		1.00000		0.00039		10.000	27.2
0.0040	0.00560		1.00000		0.00040		10.000	27.2
0.0041	0.00574		1.00000		0.00041		10.000	27.2
0.0042	0.00588		1.00000		0.00042		10.000	27.2
0.0043	0.00602		1.00000		0.00043		10.000	27.2
0.0044	0.00616		1.00000		0.00044		10.000	27.2
0.0045	0.00630		1.00000		0.00045		10.000	27.2
0.0046	0.00644		1.00000		0.00046		10.000	27.2
0.0047	0.00658		1.00000		0.00047		10.000	27.2
0.0048	0.00672		1.00000		0.00048		10.000	27.2
0.0049	0.00686		1.00000		0.00049		10.000	27.2
0.0050	0.00700		1.00000		0.00050		10.000	27.2
0.0051	0.00714		1.00000		0.00051		10.000	27.2
0.0052	0.00728		1.00000		0.00052		10.000	27.2
0.0053	0.00742		1.00000		0.00053		10.000	27.2
0.0054	0.00756		1.00000		0.00054		10.000	27.2
0.0055	0.00770		1.00000		0.00055		10.000	27.2
0.0056	0.00784		1.00000		0.00056		10.000	27.2
0.0057	0.00798		1.00000		0.00057		10.000	27.2
0.0058	0.00812		1.00000		0.00058		10.000	27.2
0.0059	0.00826		1.00000		0.00059		10.000	27.2
0.0060	0.00840		1.00000		0.00060		10.000	27.2
0.0061	0.00854		1.00000		0.00061		10.000	27.2
0.0062	0.00868		1.00000		0.00062		10.000	27.2
0.0063	0.00882		1.00000		0.00063		10.000	27.2
0.0064	0.00896		1.00000		0.00064		10.000	27.2
0.0065	0.00910		1.00000		0.00065		10.000	27.2
0.0066	0.00924		1.00000		0.00066		10.000	27.2
0.0067	0.00938		1.00000		0.00067		10.000	27.2
0.0068	0.00952		1.00000		0.00068		10.000	27.2
0.0069	0.00966		1.00000		0.00069		10.000	27.2
0.0070	0.00980		1.00000		0.00070		10.000	27.2
0.0071	0.00994		1.00000		0.00071		10.000	27.2
0.0072	0.01008		1.00000		0.00072		10.000	27.2
0.0073	0.01022		1.00000		0.00073		10.000	27.2
0.0074	0.01036		1.00000		0.00074		10.000	27.2
0.0075	0.01050		1.00000		0.00075		10.000	27.2
0.0076	0.01064		1.00000		0.00076		10.000	27.2
0.0077	0.01078		1.00000		0.00077		10.000	27.2
0.0078	0.01092		1.00000		0.00078		10.000	27.2
0.0079	0.01106		1.00000		0.00079		10.000	27.2
0.0080	0.01120		1.00000		0.00080		10.000	27.2
0.0081	0.01134		1.00000		0.00081		10.000	27.2
0.0082	0.01148		1.00000		0.00082		10.000	27.2
0.0083	0.01162		1.00000		0.00083		10.000	27.2
0.0084	0.01176		1.00000		0.00084		10.000	27.2
0.0085	0.01190		1.00000		0.00085		10.000	27.2
0.0086	0.01204		1.00000		0.00086		10.000	27.2
0.0087	0.01218		1.00000		0.00087		10.000	27.2
0.0088	0.01232		1.00000		0.00088		10.000	27.2
0.0089	0.01246		1.00000		0.00089		10.000	27.2
0.0090	0.01260		1.00000		0.00090		10.000	27.2
0.0091	0.01274		1.00000		0.00091		10.000	27.2
0.0092	0.01288		1.00000		0.00092		10.000	27.2
0.0093	0.01302		1.00000		0.00093		10.000	27.2
0.0094	0.01316		1.00000		0.00094		10.000	27.2
0.0095	0.01330		1.00000		0.00095		10.000	27.2
0.0096	0.01344		1.00000		0.00096		10.000	27.2
0.0097	0.01358		1.00000		0.00097		10.000	27.2
0.0098	0.01372		1.00000		0.00098		10.000	27.2
0.0099	0.01386		1.00000		0.00099		10.000	27.2
0.0100	0.01400		1.00000		0.00100		10.000	27.2

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	sinh u	= F ₁ '	cosh u	= F ₂ '
0.0001	0.00005	1000	1.00011	0.7	0.00001	1000	15.406	22.6
0.001	0.0005		1.00011		0.00001		15.383	22.6
0.002	0.0010		1.00013		0.00011		15.359	22.5
0.003	0.0015		1.00013		0.00021		15.336	22.4
0.004	0.0020		1.00014		0.00031		15.312	22.3
0.005	0.0025	1000	1.00015	0.7	0.00041	1000	15.289	22.3
0.006	0.0030		1.00015		0.00051		15.266	22.2
0.007	0.0035		1.00016		0.00061		15.243	22.1
0.008	0.0040		1.00017		0.00071		15.220	22.1
0.009	0.0045		1.00017		0.00080		15.196	22.0
0.010	0.0050	1000	1.00018	0.7	0.00090	1000	15.173	21.9
0.011	0.0055		1.00018		0.00100		15.151	21.9
0.012	0.0060		1.00019		0.00100		15.128	21.8
0.013	0.0065		1.00020		0.00120		15.105	21.7
0.014	0.0070		1.00021		0.00130		15.082	21.6
0.015	0.0075	1000	1.00021	0.7	0.00140	1000	15.060	21.6
0.016	0.0080		1.00022		0.00150		15.037	21.5
0.017	0.0085		1.00023		0.00160		15.015	21.4
0.018	0.0090		1.00023		0.00170		14.992	21.4
0.019	0.0095		1.00024		0.00180		14.970	21.3
0.020	0.0100	1000	1.00025	0.7	0.00190	1000	14.948	21.2
0.021	0.0105		1.00025		0.00200		14.925	21.2
0.022	0.0110		1.00026		0.00210		14.903	21.1
0.023	0.0115		1.00027		0.00220		14.880	21.0
0.024	0.0120		1.00027		0.00230		14.859	20.9
0.025	0.0125	1000	1.00028	0.7	0.00240	1000	14.837	20.9
0.026	0.0130		1.00029		0.00250		14.815	20.8
0.027	0.0135		1.00029		0.00260		14.793	20.8
0.028	0.0140		1.00030		0.00270		14.772	20.7
0.029	0.0145		1.00031		0.00280		14.750	20.7
0.030	0.0150	1000	1.00031	0.7	0.00290	1000	14.729	20.6
0.031	0.0155		1.00032		0.00300		14.707	20.5
0.032	0.0160		1.00033		0.00310		14.685	20.5
0.033	0.0165		1.00033		0.00320		14.663	20.4
0.034	0.0170		1.00034		0.00330		14.641	20.4
0.035	0.0175	1000	1.00035	0.7	0.00340	1000	14.621	20.3
0.036	0.0180		1.00035		0.00350		14.600	20.2
0.037	0.0185		1.00036		0.00360		14.579	20.2
0.038	0.0190		1.00037		0.00370		14.558	20.1
0.039	0.0195		1.00037		0.00380		14.537	20.0
0.040	0.0200	1000	1.00038	0.7	0.00390	1000	14.516	20.0
0.041	0.0205		1.00039		0.00400		14.495	19.9
0.042	0.0210		1.00040		0.00410		14.474	19.8
0.043	0.0215		1.00040		0.00420		14.453	19.8
0.044	0.0220		1.00041		0.00430		14.432	19.7
0.045	0.0225	1000	1.00042	0.7	0.00440	1000	14.412	19.7
0.046	0.0230		1.00042		0.00450		14.391	19.6
0.047	0.0235		1.00043		0.00460		14.370	19.6
0.048	0.0240		1.00044		0.00470		14.349	19.5
0.049	0.0245		1.00044		0.00480		14.329	19.4
0.050	0.0250	1000	1.00045	0.7	0.00490	1000	14.309	19.4
u	ln sh u	= F ₁ '	ln ch u	= F ₂ '	sh sh u	= F ₁ '	sh ch u	= F ₂ '

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	sinh u	= F ₁ '	cosh u	= F ₂ '
0.0700	0.07005	10.0	1.00215	0.7	0.07005	10.0	1.00215	0.7
.0701	.07016		.00216		.07016		.00216	
.0702	.07026		.00217		.07026		.00217	
.0703	.07036		.00217		.07036		.00217	
.0704	.07046		.00218		.07046		.00218	
0.0705	0.07051	10.0	1.00219	0.7	0.07051	10.0	1.00219	0.7
.0706	.07061		.00219		.07061		.00219	
.0707	.07071		.00220		.07071		.00220	
.0708	.07081		.00220		.07081		.00220	
.0709	.07091		.00221		.07091		.00221	
0.0710	0.07101	10.0	1.00221	0.7	0.07101	10.0	1.00221	0.7
.0711	.07111		.00221		.07111		.00221	
.0712	.07121		.00222		.07121		.00222	
.0713	.07131		.00222		.07131		.00222	
.0714	.07141		.00223		.07141		.00223	
0.0715	0.07151	10.0	1.00223	0.7	0.07151	10.0	1.00223	0.7
.0716	.07161		.00223		.07161		.00223	
.0717	.07171		.00224		.07171		.00224	
.0718	.07181		.00224		.07181		.00224	
.0719	.07191		.00225		.07191		.00225	
0.0720	0.07201	10.0	1.00225	0.7	0.07201	10.0	1.00225	0.7
.0721	.07211		.00225		.07211		.00225	
.0722	.07221		.00226		.07221		.00226	
.0723	.07231		.00226		.07231		.00226	
.0724	.07241		.00227		.07241		.00227	
0.0725	0.07251	10.0	1.00227	0.7	0.07251	10.0	1.00227	0.7
.0726	.07261		.00227		.07261		.00227	
.0727	.07271		.00228		.07271		.00228	
.0728	.07281		.00228		.07281		.00228	
.0729	.07291		.00229		.07291		.00229	
0.0730	0.07301	10.0	1.00229	0.7	0.07301	10.0	1.00229	0.7
.0731	.07311		.00229		.07311		.00229	
.0732	.07321		.00230		.07321		.00230	
.0733	.07331		.00230		.07331		.00230	
.0734	.07341		.00231		.07341		.00231	
0.0735	0.07351	10.0	1.00231	0.7	0.07351	10.0	1.00231	0.7
.0736	.07361		.00231		.07361		.00231	
.0737	.07371		.00232		.07371		.00232	
.0738	.07381		.00232		.07381		.00232	
.0739	.07391		.00233		.07391		.00233	
0.0740	0.07401	10.0	1.00233	0.7	0.07401	10.0	1.00233	0.7
.0741	.07411		.00233		.07411		.00233	
.0742	.07421		.00234		.07421		.00234	
.0743	.07431		.00234		.07431		.00234	
.0744	.07441		.00235		.07441		.00235	
0.0745	0.07451	10.0	1.00235	0.7	0.07451	10.0	1.00235	0.7
.0746	.07461		.00235		.07461		.00235	
.0747	.07471		.00236		.07471		.00236	
.0748	.07481		.00236		.07481		.00236	
.0749	.07491		.00237		.07491		.00237	
0.0750	0.07501	10.0	1.00237	0.8	0.07501	10.0	1.00237	0.8
z	sinh z	= F ₁ '	cosh z	= F ₂ '	sinh z	= F ₁ '	cosh z	= F ₂ '

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$
0.0750	0.07507	10.0	1.00284	0.8	0.07486	9.9	1.00285	17.7
.0751	.07517		.00285		.07496		.00286	17.7
.0752	.07527		.00286		.07506		.00287	17.7
.0753	.07537		.00287		.07516		.00288	17.7
.0754	.07547		.00288		.07526		.00289	17.7
0.0755	0.07557	10.0	1.00289	0.8	0.07536	9.9	1.00290	17.8
.0756	.07567		.00290		.07546		.00291	17.8
.0757	.07577		.00291		.07556		.00292	17.8
.0758	.07587		.00292		.07566		.00293	17.8
.0759	.07597		.00293		.07576		.00294	17.8
0.0760	0.07607	10.0	1.00294	0.8	0.07586	9.9	1.00295	17.8
.0761	.07617		.00295		.07596		.00296	17.8
.0762	.07627		.00296		.07606		.00297	17.8
.0763	.07637		.00297		.07616		.00298	17.8
.0764	.07647		.00298		.07626		.00299	17.8
0.0765	0.07657	10.0	1.00299	0.8	0.07636	9.9	1.00300	17.9
.0766	.07667		.00300		.07646		.00301	17.9
.0767	.07677		.00301		.07656		.00302	17.9
.0768	.07687		.00302		.07666		.00303	17.9
.0769	.07697		.00303		.07676		.00304	17.9
0.0770	0.07707	10.0	1.00304	0.8	0.07686	9.9	1.00305	17.9
.0771	.07717		.00305		.07696		.00306	17.9
.0772	.07727		.00306		.07706		.00307	17.9
.0773	.07737		.00307		.07716		.00308	17.9
.0774	.07747		.00308		.07726		.00309	17.9
0.0775	0.07757	10.0	1.00309	0.8	0.07736	9.9	1.00310	18.0
.0776	.07767		.00310		.07746		.00311	18.0
.0777	.07777		.00311		.07756		.00312	18.0
.0778	.07787		.00312		.07766		.00313	18.0
.0779	.07797		.00313		.07776		.00314	18.0
0.0780	0.07807	10.0	1.00314	0.8	0.07786	9.9	1.00315	18.0
.0781	.07817		.00315		.07796		.00316	18.0
.0782	.07827		.00316		.07806		.00317	18.0
.0783	.07837		.00317		.07816		.00318	18.0
.0784	.07847		.00318		.07826		.00319	18.0
0.0785	0.07857	10.0	1.00319	0.8	0.07836	9.9	1.00320	18.1
.0786	.07867		.00320		.07846		.00321	18.1
.0787	.07877		.00321		.07856		.00322	18.1
.0788	.07887		.00322		.07866		.00323	18.1
.0789	.07897		.00323		.07876		.00324	18.1
0.0790	0.07907	10.0	1.00324	0.8	0.07886	9.9	1.00325	18.1
.0791	.07917		.00325		.07896		.00326	18.1
.0792	.07927		.00326		.07906		.00327	18.1
.0793	.07937		.00327		.07916		.00328	18.1
.0794	.07947		.00328		.07926		.00329	18.1
0.0795	0.07957	10.0	1.00329	0.8	0.07936	9.9	1.00330	18.2
.0796	.07967		.00330		.07946		.00331	18.2
.0797	.07977		.00331		.07956		.00332	18.2
.0798	.07987		.00332		.07966		.00333	18.2
.0799	.07997		.00333		.07976		.00334	18.2
0.0800	0.08007	10.0	1.00334	0.8	0.07986	9.9	1.00335	18.2
.0801	.08017		.00335		.07996		.00336	18.2
.0802	.08027		.00336		.08006		.00337	18.2
.0803	.08037		.00337		.08016		.00338	18.2
.0804	.08047		.00338		.08026		.00339	18.2
0.0805	0.08057	10.0	1.00339	0.8	0.08036	9.9	1.00340	18.3
.0806	.08067		.00340		.08046		.00341	18.3
.0807	.08077		.00341		.08056		.00342	18.3
.0808	.08087		.00342		.08066		.00343	18.3
.0809	.08097		.00343		.08076		.00344	18.3
0.0810	0.08107	10.0	1.00344	0.8	0.08086	9.9	1.00345	18.3
.0811	.08117		.00345		.08096		.00346	18.3
.0812	.08127		.00346		.08106		.00347	18.3
.0813	.08137		.00347		.08116		.00348	18.3
.0814	.08147		.00348		.08126		.00349	18.3
0.0815	0.08157	10.0	1.00349	0.8	0.08136	9.9	1.00350	18.4
.0816	.08167		.00350		.08146		.00351	18.4
.0817	.08177		.00351		.08156		.00352	18.4
.0818	.08187		.00352		.08166		.00353	18.4
.0819	.08197		.00353		.08176		.00354	18.4
0.0820	0.08207	10.0	1.00354	0.8	0.08186	9.9	1.00355	18.4
.0821	.08217		.00355		.08196		.00356	18.4
.0822	.08227		.00356		.08206		.00357	18.4
.0823	.08237		.00357		.08216		.00358	18.4
.0824	.08247		.00358		.08226		.00359	18.4
0.0825	0.08257	10.0	1.00359	0.8	0.08236	9.9	1.00360	18.5
.0826	.08267		.00360		.08246		.00361	18.5
.0827	.08277		.00361		.08256		.00362	18.5
.0828	.08287		.00362		.08266		.00363	18.5
.0829	.08297		.00363		.08276		.00364	18.5
0.0830	0.08307	10.0	1.00364	0.8	0.08286	9.9	1.00365	18.5
.0831	.08317		.00365		.08296		.00366	18.5
.0832	.08327		.00366		.08306		.00367	18.5
.0833	.08337		.00367		.08316		.00368	18.5
.0834	.08347		.00368		.08326		.00369	18.5
0.0835	0.08357	10.0	1.00369	0.8	0.08336	9.9	1.00370	18.6
.0836	.08367		.00370		.08346		.00371	18.6
.0837	.08377		.00371		.08356		.00372	18.6
.0838	.08387		.00372		.08366		.00373	18.6
.0839	.08397		.00373		.08376		.00374	18.6
0.0840	0.08407	10.0	1.00374	0.8	0.08386	9.9	1.00375	18.6
.0841	.08417		.00375		.08396		.00376	18.6
.0842	.08427		.00376		.08406		.00377	18.6
.0843	.08437		.00377		.08416		.00378	18.6
.0844	.08447		.00378		.08426		.00379	18.6
0.0845	0.08457	10.0	1.00379	0.8	0.08436	9.9	1.00380	18.7
.0846	.08467		.00380		.08446		.00381	18.7
.0847	.08477		.00381		.08456		.00382	18.7
.0848	.08487		.00382		.08466		.00383	18.7
.0849	.08497		.00383		.08476		.00384	18.7
0.0850	0.08507	10.0	1.00384	0.8	0.08486	9.9	1.00385	18.7
.0851	.08517		.00385		.08496		.00386	18.7
.0852	.08527		.00386		.08506		.00387	18.7
.0853	.08537		.00387		.08516		.00388	18.7
.0854	.08547		.00388		.08526		.00389	18.7
0.0855	0.08557	10.0	1.00389	0.8	0.08536	9.9	1.00390	18.8
.0856	.08567		.00390		.08546		.00391	18.8
.0857	.08577		.00391		.08556		.00392	18.8
.0858	.08587		.00392		.08566		.00393	18.8
.0859	.08597		.00393		.08576		.00394	18.8
0.0860	0.08607	10.0	1.00394	0.8	0.08586	9.9	1.00395	18.8
.0861	.08617		.00395		.08596		.00396	18.8
.0862	.08627		.00396		.08606		.00397	18.8
.0863	.08637		.00397		.08616		.00398	18.8
.0864	.08647		.00398		.08626		.00399	18.8
0.0865	0.08657	10.0	1.00399	0.8	0.08636	9.9	1.00400	18.9
.0866	.08667		.00400		.08646		.00401	18.9
.0867	.08677		.00401		.08656		.00402	18.9
.0868	.08687		.00402		.08666		.00403	18.9
.0869	.08697		.00403		.08676		.00404	18.9
0.0870	0.08707	10.0	1.00404	0.8	0.08686	9.9	1.00405	18.9
.0871	.08717		.00405		.08696		.00406	18.9
.0872	.08727		.00406		.08706		.00407	18.9
.0873	.08737		.00407		.08716		.00408	18.9
.0874	.08747		.00408		.08726		.00409	18.9
0.0875	0.08757	10.0	1.00409	0.8	0.08736	9.9	1.00410	19.0
.0876	.08767		.00410		.08746		.00411	19.0
.0877	.08777		.00411		.08756		.00412	19.0
.0878	.08787		.00412		.08766		.00413	19.0
.0879	.08797		.00413		.08776		.00414	19.0
0.0880	0.08807	10.0	1.00414	0.8	0.08786	9.9	1.00415	19.0
.0881	.08817		.00415		.08796		.00416	19.0
.0882	.08827		.00416		.08806		.00417	19.0
.0883	.08837		.00417		.08816		.00418	19.0
.0884	.08847		.00418		.08826		.00419	19.0
0.0885	0.08857	10.0	1.00419	0.8	0.08836	9.9	1.00420	19.1
.0886	.08867		.00420		.08846		.00421	19.1
.0887	.08877		.00421		.08856		.00422	19.1
.0888	.08887		.00422		.08866		.00423	19.1
.0889	.08897		.00423		.08876		.00424	19.1
0.0890	0.08907	10.0	1.00424	0.8	0.08886	9.9	1.00425	19.1
.0891	.08917		.00425		.08896		.00426	19.1
.0892	.08927		.00426		.08906		.00427	19.1
.0893	.08937		.00427		.08916		.00428	19.1
.0894	.08947		.00428		.08926		.00429	19.1
0.0895	0.08957	10.0	1.00429	0.8	0.08936	9.9	1.00430	19.2
.0896	.08967		.00430		.08946		.00431	19.2
.0897	.08977		.00431		.08956		.00432	19.2
.0898	.08987		.00432		.08966		.00433	19.2
.0899	.08997		.00433		.08976		.00434	19.2
0.0900	0.09007	10.0	1.00434	0.8	0.08986	9.9	1.00435	19.2
.0901	.09017		.00435		.08996		.00436	19.2
.0902	.09027		.00436		.09006		.00437	19.2
.0903	.090							

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
0.0000	0.00000	10.0	1.00120	0.8	0.00000	0.0	1.2537	15.6
.0001	.00010		.00121		.00001		1.2534	15.4
.0002	.00020		.00122		.00002		1.2531	15.5
.0003	.00030		.00123		.00003		1.2528	15.5
.0004	.00040		.00124		.00004		1.2525	15.4
0.0005	0.00050	10.0	1.00124	0.8	0.00050	0.0	1.2522	15.4
.0006	.00060		.00125		.00060		1.2519	15.4
.0007	.00070		.00126		.00070		1.2516	15.4
.0008	.00080		.00127		.00080		1.2513	15.4
.0009	.00090		.00127		.00090		1.2510	15.2
0.0010	0.00100	10.0	1.00128	0.8	0.00100	0.0	1.2507	15.2
.0011	.00110		.00129		.00110		1.2504	15.2
.0012	.00120		.00130		.00120		1.2501	15.4
.0013	.00130		.00131		.00130		1.2497	15.4
.0014	.00140		.00131		.00140		1.2494	15.4
0.0015	0.00150	10.0	1.00132	0.8	0.00150	0.0	1.2491	15.0
.0016	.00160		.00133		.00160		1.2488	15.0
.0017	.00170		.00134		.00170		1.2485	14.9
.0018	.00180		.00135		.00180		1.2482	14.9
.0019	.00190		.00135		.00190		1.2479	14.9
0.0020	0.00200	10.0	1.00136	0.8	0.00200	0.0	1.2476	14.8
.0021	.00210		.00137		.00210		1.2473	14.8
.0022	.00220		.00138		.00220		1.2470	14.8
.0023	.00230		.00139		.00230		1.2467	14.7
.0024	.00240		.00140		.00240		1.2464	14.7
0.0025	0.00250	10.0	1.00141	0.8	0.00250	0.0	1.2461	14.7
.0026	.00260		.00141		.00260		1.2458	14.6
.0027	.00270		.00142		.00270		1.2455	14.6
.0028	.00280		.00143		.00280		1.2452	14.6
.0029	.00290		.00144		.00290		1.2449	14.5
0.0030	0.00300	10.0	1.00145	0.8	0.00300	0.0	1.2446	14.5
.0031	.00310		.00145		.00310		1.2443	14.5
.0032	.00320		.00146		.00320		1.2440	14.4
.0033	.00330		.00147		.00330		1.2437	14.4
.0034	.00340		.00148		.00340		1.2434	14.4
0.0035	0.00350	10.0	1.00149	0.8	0.00350	0.0	1.2431	14.4
.0036	.00360		.00150		.00360		1.2428	14.3
.0037	.00370		.00150		.00370		1.2425	14.3
.0038	.00380		.00151		.00380		1.2422	14.2
.0039	.00390		.00152		.00390		1.2419	14.2
0.0040	0.00400	10.0	1.00153	0.8	0.00400	0.0	1.2416	14.1
.0041	.00410		.00154		.00410		1.2413	14.1
.0042	.00420		.00155		.00420		1.2410	14.1
.0043	.00430		.00155		.00430		1.2407	14.0
.0044	.00440		.00156		.00440		1.2404	14.0
0.0045	0.00450	10.0	1.00157	0.8	0.00450	0.0	1.2401	14.0
.0046	.00460		.00158		.00460		1.2398	13.9
.0047	.00470		.00159		.00470		1.2395	13.9
.0048	.00480		.00160		.00480		1.2392	13.9
.0049	.00490		.00161		.00490		1.2389	13.8
0.0050	0.00500	10.0	1.00161	0.0	0.00500	0.0	1.2386	13.8
u	tanh u	= F ₁ '	coth u	= F ₂ '	sinh u	= F ₃ '	cosh u	= F ₄ '

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.0850	0.08510	10.0	1.00361	0.0	0.08480	0.0	11.793	12.8
.0851	.08520		.00362		.08490		11.779	12.8
.0852	.08530		.00363		.08500		11.765	12.7
.0853	.08540		.00364		.08510		11.752	12.7
.0854	.08550		.00365		.08519		11.738	12.7
0.0855	0.08560	10.0	1.00366	0.0	0.08520	0.0	11.724	12.6
.0856	.08570		.00367		.08530		11.711	12.6
.0857	.08580		.00367		.08540		11.697	12.6
.0858	.08591		.00368		.08550		11.684	12.6
.0859	.08601		.00369		.08560		11.670	12.5
0.0860	0.08611	10.0	1.00370	0.0	0.08570	0.0	11.657	12.5
.0861	.08621		.00371		.08580		11.643	12.5
.0862	.08631		.00372		.08590		11.630	12.4
.0863	.08641		.00373		.08600		11.616	12.4
.0864	.08651		.00373		.08610		11.603	12.4
0.0865	0.08661	10.0	1.00374	0.0	0.08528	0.0	11.590	12.3
.0866	.08671		.00375		.08638		11.576	12.3
.0867	.08681		.00376		.08648		11.563	12.3
.0868	.08691		.00377		.08658		11.550	12.2
.0869	.08701		.00378		.08668		11.536	12.2
0.0870	0.08711	10.0	1.00379	0.0	0.08578	0.0	11.523	12.2
.0871	.08721		.00380		.08688		11.510	12.1
.0872	.08731		.00380		.08698		11.497	12.1
.0873	.08741		.00381		.08708		11.484	12.1
.0874	.08751		.00382		.08718		11.471	12.1
0.0875	0.08761	10.0	1.00381	0.0	0.08728	0.0	11.458	12.0
.0876	.08771		.00384		.08738		11.445	12.0
.0877	.08781		.00385		.08748		11.432	12.0
.0878	.08791		.00385		.08758		11.419	12.0
.0879	.08801		.00387		.08767		11.406	12.0
0.0880	0.08811	10.0	1.00387	0.0	0.08777	0.0	11.393	12.0
.0881	.08821		.00388		.08787		11.380	12.0
.0882	.08831		.00389		.08797		11.367	12.0
.0883	.08841		.00390		.08807		11.354	12.0
.0884	.08852		.00391		.08817		11.342	12.0
0.0885	0.08862	10.0	1.00392	0.0	0.08827	0.0	11.329	12.0
.0886	.08872		.00393		.08837		11.316	12.0
.0887	.08882		.00394		.08847		11.304	12.0
.0888	.08892		.00395		.08857		11.291	12.0
.0889	.08902		.00395		.08867		11.278	12.0
0.0890	0.08912	10.0	1.00396	0.0	0.08877	0.0	11.266	12.0
.0891	.08922		.00397		.08887		11.253	12.0
.0892	.08932		.00398		.08897		11.240	12.0
.0893	.08942		.00399		.08907		11.228	12.0
.0894	.08952		.00400		.08916		11.215	12.0
0.0895	0.08962	10.0	1.00401	0.0	0.08926	0.0	11.203	12.0
.0896	.08972		.00402		.08936		11.191	12.0
.0897	.08982		.00403		.08946		11.178	12.0
.0898	.08992		.00403		.08956		11.165	12.0
.0899	.09002		.00404		.08966		11.153	12.0
0.0900	0.09012	10.0	1.00405	0.0	0.08976	0.0	11.141	12.0
u	$\tanh u$	$= F_1'$	$\coth u$	$= F_2'$	$\sinh u$	$= F_3'$	$\cosh u$	$= F_4'$

Natural Hyperbolic Functions.

x	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
0.0000	0.00000	1.00000	0.00000	∞	0.00000	1.00000	0.00000	∞
0.0001	0.00010	1.00000	0.00010	10.0000	0.00010	1.00000	0.00010	10.0000
0.0002	0.00020	1.00000	0.00020	5.00000	0.00020	1.00000	0.00020	5.00000
0.0003	0.00030	1.00000	0.00030	3.33333	0.00030	1.00000	0.00030	3.33333
0.0004	0.00040	1.00000	0.00040	2.50000	0.00040	1.00000	0.00040	2.50000
0.0005	0.00050	1.00000	0.00050	2.00000	0.00050	1.00000	0.00050	2.00000
0.0010	0.00100	1.00000	0.00100	1.00000	0.00100	1.00000	0.00100	1.00000
0.0011	0.00110	1.00000	0.00110	0.90909	0.00110	1.00000	0.00110	0.90909
0.0012	0.00120	1.00000	0.00120	0.83333	0.00120	1.00000	0.00120	0.83333
0.0013	0.00130	1.00000	0.00130	0.76923	0.00130	1.00000	0.00130	0.76923
0.0014	0.00140	1.00000	0.00140	0.71429	0.00140	1.00000	0.00140	0.71429
0.0015	0.00150	1.00000	0.00150	0.66667	0.00150	1.00000	0.00150	0.66667
0.0020	0.00200	1.00000	0.00200	0.50000	0.00200	1.00000	0.00200	0.50000
0.0022	0.00220	1.00000	0.00220	0.45455	0.00220	1.00000	0.00220	0.45455
0.0024	0.00240	1.00000	0.00240	0.41667	0.00240	1.00000	0.00240	0.41667
0.0026	0.00260	1.00000	0.00260	0.38462	0.00260	1.00000	0.00260	0.38462
0.0028	0.00280	1.00000	0.00280	0.35714	0.00280	1.00000	0.00280	0.35714
0.0030	0.00300	1.00000	0.00300	0.33333	0.00300	1.00000	0.00300	0.33333
0.0032	0.00320	1.00000	0.00320	0.31250	0.00320	1.00000	0.00320	0.31250
0.0034	0.00340	1.00000	0.00340	0.29412	0.00340	1.00000	0.00340	0.29412
0.0036	0.00360	1.00000	0.00360	0.27778	0.00360	1.00000	0.00360	0.27778
0.0038	0.00380	1.00000	0.00380	0.26316	0.00380	1.00000	0.00380	0.26316
0.0040	0.00400	1.00000	0.00400	0.25000	0.00400	1.00000	0.00400	0.25000
0.0042	0.00420	1.00000	0.00420	0.23810	0.00420	1.00000	0.00420	0.23810
0.0044	0.00440	1.00000	0.00440	0.22727	0.00440	1.00000	0.00440	0.22727
0.0046	0.00460	1.00000	0.00460	0.21739	0.00460	1.00000	0.00460	0.21739
0.0048	0.00480	1.00000	0.00480	0.20833	0.00480	1.00000	0.00480	0.20833
0.0050	0.00500	1.00000	0.00500	0.20000	0.00500	1.00000	0.00500	0.20000
0.0052	0.00520	1.00000	0.00520	0.19231	0.00520	1.00000	0.00520	0.19231
0.0054	0.00540	1.00000	0.00540	0.18519	0.00540	1.00000	0.00540	0.18519
0.0056	0.00560	1.00000	0.00560	0.17857	0.00560	1.00000	0.00560	0.17857
0.0058	0.00580	1.00000	0.00580	0.17241	0.00580	1.00000	0.00580	0.17241
0.0060	0.00600	1.00000	0.00600	0.16667	0.00600	1.00000	0.00600	0.16667
0.0062	0.00620	1.00000	0.00620	0.16129	0.00620	1.00000	0.00620	0.16129
0.0064	0.00640	1.00000	0.00640	0.15625	0.00640	1.00000	0.00640	0.15625
0.0066	0.00660	1.00000	0.00660	0.15143	0.00660	1.00000	0.00660	0.15143
0.0068	0.00680	1.00000	0.00680	0.14681	0.00680	1.00000	0.00680	0.14681
0.0070	0.00700	1.00000	0.00700	0.14236	0.00700	1.00000	0.00700	0.14236
0.0072	0.00720	1.00000	0.00720	0.13809	0.00720	1.00000	0.00720	0.13809
0.0074	0.00740	1.00000	0.00740	0.13400	0.00740	1.00000	0.00740	0.13400
0.0076	0.00760	1.00000	0.00760	0.13008	0.00760	1.00000	0.00760	0.13008
0.0078	0.00780	1.00000	0.00780	0.12632	0.00780	1.00000	0.00780	0.12632
0.0080	0.00800	1.00000	0.00800	0.12273	0.00800	1.00000	0.00800	0.12273
0.0082	0.00820	1.00000	0.00820	0.11929	0.00820	1.00000	0.00820	0.11929
0.0084	0.00840	1.00000	0.00840	0.11600	0.00840	1.00000	0.00840	0.11600
0.0086	0.00860	1.00000	0.00860	0.11285	0.00860	1.00000	0.00860	0.11285
0.0088	0.00880	1.00000	0.00880	0.10983	0.00880	1.00000	0.00880	0.10983
0.0090	0.00900	1.00000	0.00900	0.10693	0.00900	1.00000	0.00900	0.10693
0.0092	0.00920	1.00000	0.00920	0.10414	0.00920	1.00000	0.00920	0.10414
0.0094	0.00940	1.00000	0.00940	0.10146	0.00940	1.00000	0.00940	0.10146
0.0096	0.00960	1.00000	0.00960	0.09889	0.00960	1.00000	0.00960	0.09889
0.0098	0.00980	1.00000	0.00980	0.09643	0.00980	1.00000	0.00980	0.09643
0.0100	0.01000	1.00000	0.01000	0.09409	0.01000	1.00000	0.01000	0.09409
0.0102	0.01020	1.00000	0.01020	0.09185	0.01020	1.00000	0.01020	0.09185
0.0104	0.01040	1.00000	0.01040	0.08971	0.01040	1.00000	0.01040	0.08971
0.0106	0.01060	1.00000	0.01060	0.08767	0.01060	1.00000	0.01060	0.08767
0.0108	0.01080	1.00000	0.01080	0.08572	0.01080	1.00000	0.01080	0.08572
0.0110	0.01100	1.00000	0.01100	0.08386	0.01100	1.00000	0.01100	0.08386
0.0112	0.01120	1.00000	0.01120	0.08208	0.01120	1.00000	0.01120	0.08208
0.0114	0.01140	1.00000	0.01140	0.08038	0.01140	1.00000	0.01140	0.08038
0.0116	0.01160	1.00000	0.01160	0.07875	0.01160	1.00000	0.01160	0.07875
0.0118	0.01180	1.00000	0.01180	0.07719	0.01180	1.00000	0.01180	0.07719
0.0120	0.01200	1.00000	0.01200	0.07570	0.01200	1.00000	0.01200	0.07570
0.0122	0.01220	1.00000	0.01220	0.07427	0.01220	1.00000	0.01220	0.07427
0.0124	0.01240	1.00000	0.01240	0.07290	0.01240	1.00000	0.01240	0.07290
0.0126	0.01260	1.00000	0.01260	0.07158	0.01260	1.00000	0.01260	0.07158
0.0128	0.01280	1.00000	0.01280	0.07031	0.01280	1.00000	0.01280	0.07031
0.0130	0.01300	1.00000	0.01300	0.06908	0.01300	1.00000	0.01300	0.06908
0.0132	0.01320	1.00000	0.01320	0.06790	0.01320	1.00000	0.01320	0.06790
0.0134	0.01340	1.00000	0.01340	0.06675	0.01340	1.00000	0.01340	0.06675
0.0136	0.01360	1.00000	0.01360	0.06564	0.01360	1.00000	0.01360	0.06564
0.0138	0.01380	1.00000	0.01380	0.06456	0.01380	1.00000	0.01380	0.06456
0.0140	0.01400	1.00000	0.01400	0.06351	0.01400	1.00000	0.01400	0.06351
0.0142	0.01420	1.00000	0.01420	0.06249	0.01420	1.00000	0.01420	0.06249
0.0144	0.01440	1.00000	0.01440	0.06149	0.01440	1.00000	0.01440	0.06149
0.0146	0.01460	1.00000	0.01460	0.06052	0.01460	1.00000	0.01460	0.06052
0.0148	0.01480	1.00000	0.01480	0.05957	0.01480	1.00000	0.01480	0.05957
0.0150	0.01500	1.00000	0.01500	0.05864	0.01500	1.00000	0.01500	0.05864
0.0152	0.01520	1.00000	0.01520	0.05773	0.01520	1.00000	0.01520	0.05773
0.0154	0.01540	1.00000	0.01540	0.05684	0.01540	1.00000	0.01540	0.05684
0.0156	0.01560	1.00000	0.01560	0.05596	0.01560	1.00000	0.01560	0.05596
0.0158	0.01580	1.00000	0.01580	0.05510	0.01580	1.00000	0.01580	0.05510
0.0160	0.01600	1.00000	0.01600	0.05425	0.01600	1.00000	0.01600	0.05425
0.0162	0.01620	1.00000	0.01620	0.05342	0.01620	1.00000	0.01620	0.05342
0.0164	0.01640	1.00000	0.01640	0.05260	0.01640	1.00000	0.01640	0.05260
0.0166	0.01660	1.00000	0.01660	0.05179	0.01660	1.00000	0.01660	0.05179
0.0168	0.01680	1.00000	0.01680	0.05099	0.01680	1.00000	0.01680	0.05099
0.0170	0.01700	1.00000	0.01700	0.05020	0.01700	1.00000	0.01700	0.05020
0.0172	0.01720	1.00000	0.01720	0.04942	0.01720	1.00000	0.01720	0.04942
0.0174	0.01740	1.00000	0.01740	0.04865	0.01740	1.00000	0.01740	0.04865
0.0176	0.01760	1.00000	0.01760	0.04789	0.01760	1.00000	0.01760	0.04789
0.0178	0.01780	1.00000	0.01780	0.04714	0.01780	1.00000	0.01780	0.04714
0.0180	0.01800	1.00000	0.01800	0.04640	0.01800	1.00000	0.01800	0.04640
0.0182	0.01820	1.00000	0.01820	0.04567	0.01820	1.00000	0.01820	0.04567
0.0184	0.01840	1.00000	0.01840	0.04495	0.01840	1.00000	0.01840	0.04495
0.0186	0.01860	1.00000	0.01860	0.04424	0.01860	1.00000	0.01860	0.04424
0.0188	0.01880	1.00000	0.01880	0.04354	0.01880	1.00000	0.01880	0.04354
0.0190	0.01900	1.00000	0.01900	0.04285	0.01900	1.00000	0.01900	0.04285
0.0192	0.01920	1.00000	0.01920	0.04216	0.01920	1.00000	0.01920	0.04216
0.0194	0.01940	1.00000	0.01940	0.04148	0.01940	1.00000	0.01940	0.04148
0.0196	0.01960	1.00000	0.01960	0.04081	0.01960	1.00000	0.01960	0.04081
0.0198	0.01980	1.00000	0.01980	0.04015	0.01980	1.00000	0.01980	0.04015
0.0200	0.02000	1.00000	0.02000	0.03950	0.02000	1.00000	0.02000	0.03950
0.0202	0.02020	1.00000	0.02020	0.03885	0.02020	1.00000	0.02020	0.03885
0.0204	0.02040	1.00000	0.02040	0.03821	0.02040	1.00000	0.02040	0.03821
0.0206	0.02060	1.00000	0.02060	0.03758	0.02060	1.00000	0.02060	0.03758
0.0208	0.02080	1.00000	0.02080	0.03695	0.02080	1.00000	0.02080	0.03695
0.0210	0.02100	1.00000	0.02100	0.03633	0.02100	1.00000	0.02100	0.03633
0.021								

Natural Hyperbolic Functions.

u	sinh u	= F'	cosh u	= F'	tanh u	= F'	coth u	= F'
0.0050	0.00514	10.0	1.00151	1.0	0.00512	10.0	10.558	11.0
.0051	.00514		.00151		.00511		10.547	11.0
.0052	.00514		.00151		.00511		10.536	11.0
.0053	.00514		.00151		.00511		10.525	11.0
.0054	.00514		.00151		.00511		10.514	11.0
0.0055	0.00515	10.0	1.00156	1.0	0.00521	10.0	10.501	10.0
.0056	.00515		.00157		.00521		10.494	10.0
.0057	.00515		.00157		.00521		10.481	10.0
.0058	.00515		.00159		.00521		10.470	10.0
.0059	.00515		.00160		.00521		10.459	10.0
0.0060	0.00515	10.0	1.00161	1.0	0.00521	10.0	10.449	10.0
.0061	.00515		.00161		.00521		10.438	10.0
.0062	.00515		.00161		.00521		10.427	10.0
.0063	.00515		.00161		.00521		10.416	10.0
.0064	.00515		.00161		.00521		10.406	10.0
0.0065	0.00515	10.0	1.00166	1.0	0.00521	10.0	10.395	10.0
.0066	.00515		.00167		.00521		10.384	10.0
.0067	.00515		.00168		.00521		10.373	10.0
.0068	.00515		.00169		.00521		10.363	10.0
.0069	.00515		.00170		.00521		10.352	10.0
0.0070	0.00515	10.0	1.00171	1.0	0.00521	10.0	10.342	10.0
.0071	.00515		.00172		.00521		10.331	10.0
.0072	.00515		.00173		.00521		10.320	10.0
.0073	.00515		.00174		.00521		10.310	10.0
.0074	.00515		.00175		.00521		10.299	10.0
0.0075	0.00515	10.0	1.00176	1.0	0.00521	10.0	10.289	10.0
.0076	.00515		.00177		.00521		10.278	10.0
.0077	.00515		.00178		.00521		10.268	10.0
.0078	.00515		.00179		.00521		10.258	10.0
.0079	.00515		.00180		.00521		10.247	10.0
0.0080	0.00515	10.0	1.00181	1.0	0.00521	10.0	10.237	10.0
.0081	.00515		.00182		.00521		10.226	10.0
.0082	.00515		.00183		.00521		10.216	10.0
.0083	.00515		.00184		.00521		10.206	10.0
.0084	.00515		.00185		.00521		10.195	10.0
0.0085	0.00515	10.0	1.00186	1.0	0.00521	10.0	10.185	10.0
.0086	.00515		.00186		.00521		10.175	10.0
.0087	.00515		.00187		.00521		10.165	10.0
.0088	.00515		.00188		.00521		10.154	10.0
.0089	.00515		.00189		.00521		10.144	10.0
0.0090	0.00515	10.0	1.00190	1.0	0.00521	10.0	10.134	10.0
.0091	.00515		.00191		.00521		10.124	10.0
.0092	.00515		.00192		.00521		10.114	10.0
.0093	.00515		.00193		.00521		10.104	10.0
.0094	.00515		.00194		.00521		10.093	10.0
0.0095	0.00515	10.0	1.00195	1.0	0.00521	10.0	10.083	10.0
.0096	.00515		.00196		.00521		10.073	10.0
.0097	.00515		.00197		.00521		10.063	10.0
.0098	.00515		.00198		.00521		10.053	10.0
.0099	.00515		.00199		.00521		10.043	10.0
0.1000	0.10017	10.1	1.00500	1.0	0.09907	9.0	10.033	10.0
u	tanh u	= F'	coth u	= F'	sinh u	= F'	cosh u	= F'

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
0.100	0.10017	1.00500	0.09967	1.00500	0.10017	1.00500	0.09967	1.00500
.101	.10034	1.00501	.09967	1.00501	.10034	1.00501	.09967	1.00501
.102	.10051	1.00502	.09967	1.00502	.10051	1.00502	.09967	1.00502
.103	.10068	1.00503	.09967	1.00503	.10068	1.00503	.09967	1.00503
.104	.10085	1.00504	.09967	1.00504	.10085	1.00504	.09967	1.00504
.105	.10102	1.00505	.09967	1.00505	.10102	1.00505	.09967	1.00505
.106	.10119	1.00506	.09967	1.00506	.10119	1.00506	.09967	1.00506
.107	.10136	1.00507	.09967	1.00507	.10136	1.00507	.09967	1.00507
.108	.10153	1.00508	.09967	1.00508	.10153	1.00508	.09967	1.00508
.109	.10170	1.00509	.09967	1.00509	.10170	1.00509	.09967	1.00509
.110	.10187	1.00510	.09967	1.00510	.10187	1.00510	.09967	1.00510
.111	.10204	1.00511	.09967	1.00511	.10204	1.00511	.09967	1.00511
.112	.10221	1.00512	.09967	1.00512	.10221	1.00512	.09967	1.00512
.113	.10238	1.00513	.09967	1.00513	.10238	1.00513	.09967	1.00513
.114	.10255	1.00514	.09967	1.00514	.10255	1.00514	.09967	1.00514
.115	.10272	1.00515	.09967	1.00515	.10272	1.00515	.09967	1.00515
.116	.10289	1.00516	.09967	1.00516	.10289	1.00516	.09967	1.00516
.117	.10306	1.00517	.09967	1.00517	.10306	1.00517	.09967	1.00517
.118	.10323	1.00518	.09967	1.00518	.10323	1.00518	.09967	1.00518
.119	.10340	1.00519	.09967	1.00519	.10340	1.00519	.09967	1.00519
.120	.10357	1.00520	.09967	1.00520	.10357	1.00520	.09967	1.00520
.121	.10374	1.00521	.09967	1.00521	.10374	1.00521	.09967	1.00521
.122	.10391	1.00522	.09967	1.00522	.10391	1.00522	.09967	1.00522
.123	.10408	1.00523	.09967	1.00523	.10408	1.00523	.09967	1.00523
.124	.10425	1.00524	.09967	1.00524	.10425	1.00524	.09967	1.00524
.125	.10442	1.00525	.09967	1.00525	.10442	1.00525	.09967	1.00525
.126	.10459	1.00526	.09967	1.00526	.10459	1.00526	.09967	1.00526
.127	.10476	1.00527	.09967	1.00527	.10476	1.00527	.09967	1.00527
.128	.10493	1.00528	.09967	1.00528	.10493	1.00528	.09967	1.00528
.129	.10510	1.00529	.09967	1.00529	.10510	1.00529	.09967	1.00529
.130	.10527	1.00530	.09967	1.00530	.10527	1.00530	.09967	1.00530
.131	.10544	1.00531	.09967	1.00531	.10544	1.00531	.09967	1.00531
.132	.10561	1.00532	.09967	1.00532	.10561	1.00532	.09967	1.00532
.133	.10578	1.00533	.09967	1.00533	.10578	1.00533	.09967	1.00533
.134	.10595	1.00534	.09967	1.00534	.10595	1.00534	.09967	1.00534
.135	.10612	1.00535	.09967	1.00535	.10612	1.00535	.09967	1.00535
.136	.10629	1.00536	.09967	1.00536	.10629	1.00536	.09967	1.00536
.137	.10646	1.00537	.09967	1.00537	.10646	1.00537	.09967	1.00537
.138	.10663	1.00538	.09967	1.00538	.10663	1.00538	.09967	1.00538
.139	.10680	1.00539	.09967	1.00539	.10680	1.00539	.09967	1.00539
.140	.10697	1.00540	.09967	1.00540	.10697	1.00540	.09967	1.00540
.141	.10714	1.00541	.09967	1.00541	.10714	1.00541	.09967	1.00541
.142	.10731	1.00542	.09967	1.00542	.10731	1.00542	.09967	1.00542
.143	.10748	1.00543	.09967	1.00543	.10748	1.00543	.09967	1.00543
.144	.10765	1.00544	.09967	1.00544	.10765	1.00544	.09967	1.00544
.145	.10782	1.00545	.09967	1.00545	.10782	1.00545	.09967	1.00545
.146	.10799	1.00546	.09967	1.00546	.10799	1.00546	.09967	1.00546
.147	.10816	1.00547	.09967	1.00547	.10816	1.00547	.09967	1.00547
.148	.10833	1.00548	.09967	1.00548	.10833	1.00548	.09967	1.00548
.149	.10850	1.00549	.09967	1.00549	.10850	1.00549	.09967	1.00549
.150	.10867	1.00550	.09967	1.00550	.10867	1.00550	.09967	1.00550
.151	.10884	1.00551	.09967	1.00551	.10884	1.00551	.09967	1.00551
.152	.10901	1.00552	.09967	1.00552	.10901	1.00552	.09967	1.00552
.153	.10918	1.00553	.09967	1.00553	.10918	1.00553	.09967	1.00553
.154	.10935	1.00554	.09967	1.00554	.10935	1.00554	.09967	1.00554
.155	.10952	1.00555	.09967	1.00555	.10952	1.00555	.09967	1.00555
.156	.10969	1.00556	.09967	1.00556	.10969	1.00556	.09967	1.00556
.157	.10986	1.00557	.09967	1.00557	.10986	1.00557	.09967	1.00557
.158	.11003	1.00558	.09967	1.00558	.11003	1.00558	.09967	1.00558
.159	.11020	1.00559	.09967	1.00559	.11020	1.00559	.09967	1.00559
.160	.11037	1.00560	.09967	1.00560	.11037	1.00560	.09967	1.00560
.161	.11054	1.00561	.09967	1.00561	.11054	1.00561	.09967	1.00561
.162	.11071	1.00562	.09967	1.00562	.11071	1.00562	.09967	1.00562
.163	.11088	1.00563	.09967	1.00563	.11088	1.00563	.09967	1.00563
.164	.11105	1.00564	.09967	1.00564	.11105	1.00564	.09967	1.00564
.165	.11122	1.00565	.09967	1.00565	.11122	1.00565	.09967	1.00565
.166	.11139	1.00566	.09967	1.00566	.11139	1.00566	.09967	1.00566
.167	.11156	1.00567	.09967	1.00567	.11156	1.00567	.09967	1.00567
.168	.11173	1.00568	.09967	1.00568	.11173	1.00568	.09967	1.00568
.169	.11190	1.00569	.09967	1.00569	.11190	1.00569	.09967	1.00569
.170	.11207	1.00570	.09967	1.00570	.11207	1.00570	.09967	1.00570
.171	.11224	1.00571	.09967	1.00571	.11224	1.00571	.09967	1.00571
.172	.11241	1.00572	.09967	1.00572	.11241	1.00572	.09967	1.00572
.173	.11258	1.00573	.09967	1.00573	.11258	1.00573	.09967	1.00573
.174	.11275	1.00574	.09967	1.00574	.11275	1.00574	.09967	1.00574
.175	.11292	1.00575	.09967	1.00575	.11292	1.00575	.09967	1.00575
.176	.11309	1.00576	.09967	1.00576	.11309	1.00576	.09967	1.00576
.177	.11326	1.00577	.09967	1.00577	.11326	1.00577	.09967	1.00577
.178	.11343	1.00578	.09967	1.00578	.11343	1.00578	.09967	1.00578
.179	.11360	1.00579	.09967	1.00579	.11360	1.00579	.09967	1.00579
.180	.11377	1.00580	.09967	1.00580	.11377	1.00580	.09967	1.00580
.181	.11394	1.00581	.09967	1.00581	.11394	1.00581	.09967	1.00581
.182	.11411	1.00582	.09967	1.00582	.11411	1.00582	.09967	1.00582
.183	.11428	1.00583	.09967	1.00583	.11428	1.00583	.09967	1.00583
.184	.11445	1.00584	.09967	1.00584	.11445	1.00584	.09967	1.00584
.185	.11462	1.00585	.09967	1.00585	.11462	1.00585	.09967	1.00585
.186	.11479	1.00586	.09967	1.00586	.11479	1.00586	.09967	1.00586
.187	.11496	1.00587	.09967	1.00587	.11496	1.00587	.09967	1.00587
.188	.11513	1.00588	.09967	1.00588	.11513	1.00588	.09967	1.00588
.189	.11530	1.00589	.09967	1.00589	.11530	1.00589	.09967	1.00589
.190	.11547	1.00590	.09967	1.00590	.11547	1.00590	.09967	1.00590
.191	.11564	1.00591	.09967	1.00591	.11564	1.00591	.09967	1.00591
.192	.11581	1.00592	.09967	1.00592	.11581	1.00592	.09967	1.00592
.193	.11598	1.00593	.09967	1.00593	.11598	1.00593	.09967	1.00593
.194	.11615	1.00594	.09967	1.00594	.11615	1.00594	.09967	1.00594
.195	.11632	1.00595	.09967	1.00595	.11632	1.00595	.09967	1.00595
.196	.11649	1.00596	.09967	1.00596	.11649	1.00596	.09967	1.00596
.197	.11666	1.00597	.09967	1.00597	.11666	1.00597	.09967	1.00597
.198	.11683	1.00598	.09967	1.00598	.11683	1.00598	.09967	1.00598
.199	.11700	1.00599	.09967	1.00599	.11700	1.00599	.09967	1.00599
.200	.11717	1.00600	.09967	1.00600	.11717	1.00600	.09967	1.00600

Natural Hyperbolic Functions.

u	sinh u	= F ₂	cosh u	= F ₁	tanh u	= F ₃	cosh u	c: F ₂
0.150	0.15095	101.1	1.01137	15.1	0.14889	97.8	6.2166	441.1
.151	.15137	101.1	.01142	15.2	.14985	97.8	.6728	435.3
.152	.15179	101.2	.01157	15.3	.15084	97.7	.6095	440.5
.153	.15220	101.2	.01173	15.4	.15184	97.7	.5866	443.0
.154	.15261	101.2	.01188	15.5	.15279	97.7	.5448	418.3
0.155	0.15292	101.2	1.01204	15.6	0.15377	97.6	6.5932	412.0
.156	.15333	101.2	.01219	15.7	.15475	97.6	.4638	407.6
.157	.15375	101.2	.01235	15.8	.15572	97.6	.4217	404.4
.158	.15416	101.3	.01251	15.9	.15670	97.5	.3817	397.3
.159	.15457	101.3	.01267	16.0	.15767	97.5	.3422	394.2
0.160	0.15488	101.3	1.01283	16.1	0.15865	97.5	6.5932	387.3
.161	.15529	101.3	.01299	16.2	.15962	97.5	.3638	382.5
.162	.15571	101.3	.01315	16.3	.16060	97.4	.3257	377.7
.163	.15612	101.3	.01331	16.4	.16157	97.4	.2892	373.1
.164	.15654	101.3	.01348	16.5	.16254	97.4	.2521	368.5
0.165	0.15685	101.4	1.01364	16.6	0.16352	97.3	6.1155	361.0
.166	.15726	101.4	.01381	16.7	.16449	97.3	.2703	356.6
.167	.15768	101.4	.01398	16.8	.16546	97.3	.2416	355.2
.168	.15809	101.4	.01415	16.9	.16644	97.2	.2083	351.0
.169	.15851	101.4	.01431	17.0	.16741	97.2	5.0734	346.8
0.170	0.15882	101.4	1.01448	17.1	0.16838	97.2	5.0734	343.7
.171	.15923	101.5	.01465	17.2	.16935	97.1	.2948	338.7
.172	.15965	101.5	.01481	17.3	.17032	97.1	.2712	334.7
.173	.16006	101.5	.01500	17.4	.17129	97.1	.2379	330.8
.174	.16048	101.5	.01518	17.5	.17226	97.0	.2050	327.0
0.175	0.16079	101.5	1.01535	17.6	0.17324	97.0	5.7725	323.2
.176	.16120	101.6	.01553	17.7	.17420	97.0	.2404	319.5
.177	.16162	101.6	.01571	17.8	.17517	97.0	.2083	315.0
.178	.16203	101.6	.01588	17.9	.17614	97.0	.1773	311.3
.179	.16245	101.6	.01606	18.0	.17711	97.0	.1461	308.8
0.180	0.16276	101.6	1.01624	18.1	0.17808	96.8	5.6154	306.3
.181	.16317	101.6	.01643	18.2	.17905	96.8	.2581	301.9
.182	.16359	101.7	.01661	18.3	.18002	96.8	.2350	298.6
.183	.16400	101.7	.01679	18.4	.18098	96.7	.2083	295.3
.184	.16442	101.7	.01698	18.5	.18195	96.7	.1800	292.1
0.185	0.16473	101.7	1.01716	18.6	0.18292	96.7	5.4679	288.9
.186	.16514	101.7	.01735	18.7	.18388	96.6	.2381	285.8
.187	.16556	101.8	.01754	18.8	.18485	96.6	.2100	282.7
.188	.16597	101.8	.01772	18.9	.18582	96.5	.1817	279.6
.189	.16639	101.8	.01791	19.0	.18678	96.5	.1530	276.6
0.190	0.16670	101.8	1.01810	19.1	0.18775	96.5	5.3263	273.7
.191	.16711	101.8	.01829	19.2	.18871	96.4	.2201	270.8
.192	.16753	101.8	.01847	19.3	.18967	96.4	.1922	268.0
.193	.16794	101.9	.01866	19.4	.19064	96.4	.1645	265.2
.194	.16836	101.9	.01888	19.5	.19160	96.3	.1361	262.4
0.195	0.16867	101.9	1.01897	19.6	0.19257	96.3	5.1930	259.7
.196	.16908	101.9	.01917	19.7	.19353	96.3	.1672	257.0
.197	.16950	101.9	.01937	19.8	.19449	96.2	.1406	254.4
.198	.16991	102.0	.01957	19.9	.19545	96.2	.1140	251.8
.199	.17032	102.0	.01977	20.0	.19641	96.1	.0873	249.2
0.200	0.17064	102.0	1.02007	20.1	0.19738	96.1	5.0656	246.7
u	tan gd u	= F ₄	sec gd u	= F ₅	sin gd u	= F ₆	cos gd u	= F ₇

Natural Hyperbolic Functions.

u	sinh u	$\cosh u$	sinh u	$\cosh u$	sinh u	$\cosh u$	sinh u	$\cosh u$
0.200	0.20134	1.02007	0.201	0.20228	0.202	0.20321	0.203	0.20414
.201	.20228	1.02007	.202	.20321	.203	.20414	.204	.20507
.202	.20321	1.02007	.203	.20414	.204	.20507	.205	.20600
.203	.20414	1.02007	.204	.20507	.205	.20600	.206	.20693
.204	.20507	1.02007	.205	.20600	.206	.20693	.207	.20786
0.205	0.20600	1.02007	0.206	0.20693	0.207	0.20786	0.208	0.20879
.206	.20693	1.02007	.207	.20786	.208	.20879	.209	.20972
.207	.20786	1.02007	.208	.20879	.209	.20972	.210	.21065
.208	.20879	1.02007	.209	.20972	.210	.21065	.211	.21158
.209	.20972	1.02007	.210	.21065	.211	.21158	.212	.21251
0.210	0.21158	1.02007	0.211	0.21251	0.212	0.21344	0.213	0.21437
.211	.21251	1.02007	.212	.21344	.213	.21437	.214	.21530
.212	.21344	1.02007	.213	.21437	.214	.21530	.215	.21623
.213	.21437	1.02007	.214	.21530	.215	.21623	.216	.21716
.214	.21530	1.02007	.215	.21623	.216	.21716	.217	.21809
0.215	0.21716	1.02007	0.216	0.21809	0.217	0.21902	0.218	0.22000
.216	.21809	1.02007	.217	.21902	.218	.22000	.219	.22100
.217	.21902	1.02007	.218	.22000	.219	.22100	.220	.22200
.218	.22000	1.02007	.219	.22100	.220	.22200	.221	.22300
.219	.22100	1.02007	.220	.22200	.221	.22300	.222	.22400
0.220	0.22300	1.02007	0.221	0.22400	0.222	0.22500	0.223	0.22600
.221	.22400	1.02007	.222	.22500	.223	.22600	.224	.22700
.222	.22500	1.02007	.223	.22600	.224	.22700	.225	.22800
.223	.22600	1.02007	.224	.22700	.225	.22800	.226	.22900
.224	.22700	1.02007	.225	.22800	.226	.22900	.227	.23000
0.225	0.22900	1.02007	0.226	0.23000	0.227	0.23100	0.228	0.23200
.226	.23000	1.02007	.227	.23100	.228	.23200	.229	.23300
.227	.23100	1.02007	.228	.23200	.229	.23300	.230	.23400
.228	.23200	1.02007	.229	.23300	.230	.23400	.231	.23500
.229	.23300	1.02007	.230	.23400	.231	.23500	.232	.23600
0.230	0.23500	1.02007	0.231	0.23600	0.232	0.23700	0.233	0.23800
.231	.23600	1.02007	.232	.23700	.233	.23800	.234	.23900
.232	.23700	1.02007	.233	.23800	.234	.23900	.235	.24000
.233	.23800	1.02007	.234	.23900	.235	.24000	.236	.24100
.234	.23900	1.02007	.235	.24000	.236	.24100	.237	.24200
0.235	0.24200	1.02007	0.236	0.24300	0.237	0.24400	0.238	0.24500
.236	.24300	1.02007	.237	.24400	.238	.24500	.239	.24600
.237	.24400	1.02007	.238	.24500	.239	.24600	.240	.24700
.238	.24500	1.02007	.239	.24600	.240	.24700	.241	.24800
.239	.24600	1.02007	.240	.24700	.241	.24800	.242	.24900
0.240	0.24900	1.02007	0.241	0.25000	0.242	0.25100	0.243	0.25200
.241	.25000	1.02007	.242	.25100	.243	.25200	.244	.25300
.242	.25100	1.02007	.243	.25200	.244	.25300	.245	.25400
.243	.25200	1.02007	.244	.25300	.245	.25400	.246	.25500
.244	.25300	1.02007	.245	.25400	.246	.25500	.247	.25600
0.245	0.25600	1.02007	0.246	0.25700	0.247	0.25800	0.248	0.25900
.246	.25700	1.02007	.247	.25800	.248	.25900	.249	.26000
.247	.25800	1.02007	.248	.25900	.249	.26000	.250	.26100
.248	.25900	1.02007	.249	.26000	.250	.26100	.251	.26200
.249	.26000	1.02007	.250	.26100	.251	.26200	.252	.26300
0.250	0.26300	1.02007	0.251	0.26400	0.252	0.26500	0.253	0.26600
.251	.26400	1.02007	.252	.26500	.253	.26600	.254	.26700
.252	.26500	1.02007	.253	.26600	.254	.26700	.255	.26800
.253	.26600	1.02007	.254	.26700	.255	.26800	.256	.26900
.254	.26700	1.02007	.255	.26800	.256	.26900	.257	.27000

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.300	0.30452	104.5	1.04534	39.5	0.29131	94.5	3.4327	107.8
.301	.30557	104.6	.04591	39.6	.29223	94.5	.4230	107.1
.302	.30661	104.6	.04605	39.7	.29314	94.4	.1131	106.4
.303	.30766	104.6	.04620	39.8	.29405	94.4	.2007	105.6
.304	.30870	104.7	.04635	39.9	.29497	94.3	.2894	104.9
0.305	0.30975	104.7	1.04687	37.0	0.29588	94.2	3.3707	104.2
.306	.31080	104.7	.04718	37.1	.29679	94.2	.2991	103.5
.307	.31185	104.7	.04759	37.2	.29771	94.1	.3890	102.8
.308	.31289	104.8	.04781	37.3	.29862	94.1	.4788	102.1
.309	.31394	104.8	.04812	37.4	.29953	94.0	.5681	101.5
0.310	0.31499	104.8	1.04844	37.5	0.30044	94.0	3.3245	100.8
.311	.31604	104.9	.04875	37.6	.30135	93.9	.3181	100.1
.312	.31709	104.9	.04907	37.7	.30226	93.9	.2965	99.5
.313	.31814	104.9	.04939	37.8	.30316	93.8	.2985	98.8
.314	.31919	105.0	.04970	37.9	.30407	93.8	.2887	98.1
0.315	0.32024	105.0	1.05002	38.0	0.30498	93.7	3.2781	97.5
.316	.32129	105.0	.05044	38.1	.30589	93.6	.2962	96.9
.317	.32234	105.1	.05077	38.2	.30679	93.6	.2955	96.2
.318	.32339	105.1	.05099	38.3	.30770	93.5	.2969	95.6
.319	.32444	105.1	.05131	38.4	.30860	93.5	.2961	95.0
0.320	0.32549	105.2	1.05164	38.5	0.30951	93.4	3.2309	94.4
.321	.32654	105.2	.05196	38.7	.31041	93.4	.2915	93.8
.322	.32759	105.2	.05229	38.8	.31131	93.3	.2912	93.1
.323	.32865	105.3	.05262	38.9	.31222	93.3	.2910	92.5
.324	.32970	105.3	.05295	39.0	.31312	93.2	.2917	91.9
0.325	0.33075	105.3	1.05328	39.1	0.31402	93.1	3.1845	91.4
.326	.33180	105.4	.05361	39.2	.31492	93.1	.2751	90.8
.327	.33285	105.4	.05394	39.3	.31582	93.0	.2763	90.1
.328	.33391	105.4	.05426	39.4	.31672	93.0	.2757	89.5
.329	.33497	105.5	.05461	39.5	.31762	92.9	.2761	88.8
0.330	0.33602	105.5	1.05495	39.6	0.31852	92.9	3.1298	88.1
.331	.33708	105.5	.05528	39.7	.31942	92.8	.2767	87.5
.332	.33813	105.6	.05562	39.8	.32032	92.7	.2769	86.9
.333	.33919	105.6	.05596	39.9	.32122	92.7	.2772	86.2
.334	.34024	105.6	.05630	40.0	.32211	92.6	.2775	85.6
0.335	0.34130	105.7	1.05664	40.1	0.32301	92.6	3.0959	85.1
.336	.34235	105.7	.05698	40.2	.32390	92.5	.2774	84.5
.337	.34342	105.7	.05732	40.3	.32480	92.5	.2779	83.9
.338	.34447	105.8	.05767	40.4	.32570	92.4	.2781	83.3
.339	.34553	105.8	.05801	40.5	.32658	92.3	.2784	82.7
0.340	0.34659	105.8	1.05836	40.7	0.32748	92.3	3.0536	82.1
.341	.34765	105.9	.05871	40.8	.32837	92.2	.2785	81.5
.342	.34871	105.9	.05905	40.9	.32926	92.2	.2787	80.9
.343	.34977	105.9	.05940	41.0	.33015	92.1	.2789	80.3
.344	.35082	106.0	.05975	41.1	.33104	92.0	.2792	79.7
0.345	0.35188	106.0	1.06011	41.2	0.33193	92.0	3.0126	79.1
.346	.35295	106.0	.06046	41.3	.33282	91.9	.2795	78.5
.347	.35401	106.1	.06081	41.4	.33371	91.9	.2797	77.9
.348	.35507	106.1	.06117	41.5	.33460	91.8	.2799	77.3
.349	.35613	106.2	.06152	41.6	.33549	91.7	.2802	76.7
0.350	0.35719	106.2	1.06183	41.7	0.33638	91.7	2.9729	76.1
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F'	cosh u	= F'	tanh u	= F'	coth u	= F'
0.350	0.35719	106.2	1.06188	35.7	0.33638	88.7	2.9929	78.4
.351	.35825	106.2	.06224	35.8	.33725	88.6	.9951	77.9
.352	.35931	106.3	.06259	35.9	.33815	88.6	.9973	77.5
.353	.36038	106.3	.06295	36.0	.33903	88.5	.9996	77.0
.354	.36144	106.3	.06332	36.1	.33992	88.4	.9919	76.5
0.355	0.36250	106.4	1.06368	36.3	0.34080	88.4	2.9943	76.1
.356	.36357	106.4	.06404	36.4	.34169	88.3	.9977	75.7
.357	.36463	106.4	.06440	36.5	.34257	88.3	.9999	75.2
.358	.36570	106.5	.06477	36.6	.34345	88.2	.9916	74.8
.359	.36676	106.5	.06514	36.7	.34433	88.1	.9932	74.3
0.360	0.36783	106.6	1.06550	36.8	0.34521	88.1	2.9968	73.9
.361	.36890	106.6	.06587	36.9	.34609	88.0	.9994	73.5
.362	.36996	106.6	.06624	37.0	.34697	88.0	.9981	73.1
.363	.37102	106.7	.06661	37.1	.34785	87.9	.9978	72.6
.364	.37209	106.7	.06698	37.2	.34873	87.8	.9975	72.2
0.365	0.37316	106.7	1.06736	37.3	0.34961	87.8	2.9961	71.8
.366	.37423	106.8	.06773	37.4	.35049	87.7	.9952	71.4
.367	.37529	106.8	.06810	37.5	.35137	87.7	.9940	71.0
.368	.37636	106.8	.06848	37.6	.35224	87.6	.9930	70.6
.369	.37743	106.9	.06885	37.7	.35312	87.5	.9919	70.2
0.370	0.37850	106.9	1.06923	37.9	0.35399	87.5	2.9929	69.8
.371	.37957	107.0	.06961	38.0	.35487	87.4	.9910	69.4
.372	.38064	107.0	.06999	38.1	.35575	87.3	.9910	69.0
.373	.38171	107.0	.07037	38.2	.35661	87.3	.9902	68.6
.374	.38278	107.1	.07076	38.3	.35749	87.2	.9893	68.2
0.375	0.38385	107.1	1.07114	38.4	0.35836	87.2	2.9905	67.9
.376	.38492	107.2	.07152	38.5	.35923	87.1	.9887	67.5
.377	.38599	107.2	.07191	38.6	.36010	87.0	.9877	67.1
.378	.38707	107.2	.07229	38.7	.36097	87.0	.9870	66.7
.379	.38814	107.3	.07268	38.8	.36184	86.9	.9862	66.4
0.380	0.38921	107.3	1.07307	38.9	0.36271	86.8	2.9870	66.0
.381	.39028	107.3	.07345	39.0	.36358	86.8	.9863	65.7
.382	.39135	107.4	.07383	39.1	.36444	86.7	.9850	65.3
.383	.39243	107.4	.07422	39.2	.36531	86.7	.9837	64.9
.384	.39351	107.5	.07461	39.4	.36618	86.6	.9830	64.6
0.385	0.39458	107.5	1.07503	39.5	0.36704	86.5	2.9845	64.2
.386	.39566	107.5	.07543	39.6	.36791	86.5	.9831	63.9
.387	.39673	107.6	.07582	39.7	.36877	86.4	.9817	63.5
.388	.39781	107.6	.07622	39.8	.36963	86.3	.9804	63.2
.389	.39889	107.7	.07662	39.9	.37050	86.3	.9791	62.8
0.390	0.39996	107.7	1.07702	40.0	0.37136	86.2	2.9808	62.5
.391	.40104	107.7	.07742	40.1	.37222	86.1	.9786	62.2
.392	.40212	107.8	.07782	40.2	.37308	86.1	.9784	61.8
.393	.40320	107.8	.07822	40.3	.37394	86.0	.9772	61.5
.394	.40427	107.9	.07863	40.4	.37480	86.0	.9760	61.2
0.395	0.40535	107.9	1.07903	40.5	0.37566	85.9	2.9820	60.9
.396	.40643	107.9	.07944	40.6	.37652	85.8	.9750	60.5
.397	.40751	108.0	.07984	40.8	.37738	85.8	.9740	60.2
.398	.40859	108.0	.08025	40.9	.37824	85.7	.9738	59.9
.399	.40967	108.1	.08066	41.0	.37909	85.6	.9730	59.6
0.400	0.41075	108.1	1.08107	41.1	0.37995	85.6	2.9819	59.3
u	ln gd u	= F'	sec gd u	= F'	sin gd u	= F'	csc gd u	= F'

Natural Hyperbolic Functions.

x	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
0.400	0.41075	1.0817	0.37993	2.6340	0.41075	1.0817	0.37993	2.6340
.401	.41181	1.0818	.38000	2.6340	.41181	1.0818	.38000	2.6340
.402	.41287	1.0819	.38006	2.6340	.41287	1.0819	.38006	2.6340
.403	.41393	1.0820	.38012	2.6340	.41393	1.0820	.38012	2.6340
.404	.41499	1.0821	.38018	2.6340	.41499	1.0821	.38018	2.6340
.405	.41605	1.0822	.38024	2.6340	.41605	1.0822	.38024	2.6340
.406	.41711	1.0823	.38030	2.6340	.41711	1.0823	.38030	2.6340
.407	.41817	1.0824	.38036	2.6340	.41817	1.0824	.38036	2.6340
.408	.41923	1.0825	.38042	2.6340	.41923	1.0825	.38042	2.6340
.409	.42029	1.0826	.38048	2.6340	.42029	1.0826	.38048	2.6340
.410	.42135	1.0827	.38054	2.6340	.42135	1.0827	.38054	2.6340
.411	.42241	1.0828	.38060	2.6340	.42241	1.0828	.38060	2.6340
.412	.42347	1.0829	.38066	2.6340	.42347	1.0829	.38066	2.6340
.413	.42453	1.0830	.38072	2.6340	.42453	1.0830	.38072	2.6340
.414	.42559	1.0831	.38078	2.6340	.42559	1.0831	.38078	2.6340
.415	.42665	1.0832	.38084	2.6340	.42665	1.0832	.38084	2.6340
.416	.42771	1.0833	.38090	2.6340	.42771	1.0833	.38090	2.6340
.417	.42877	1.0834	.38096	2.6340	.42877	1.0834	.38096	2.6340
.418	.42983	1.0835	.38102	2.6340	.42983	1.0835	.38102	2.6340
.419	.43089	1.0836	.38108	2.6340	.43089	1.0836	.38108	2.6340
.420	.43195	1.0837	.38114	2.6340	.43195	1.0837	.38114	2.6340
.421	.43301	1.0838	.38120	2.6340	.43301	1.0838	.38120	2.6340
.422	.43407	1.0839	.38126	2.6340	.43407	1.0839	.38126	2.6340
.423	.43513	1.0840	.38132	2.6340	.43513	1.0840	.38132	2.6340
.424	.43619	1.0841	.38138	2.6340	.43619	1.0841	.38138	2.6340
.425	.43725	1.0842	.38144	2.6340	.43725	1.0842	.38144	2.6340
.426	.43831	1.0843	.38150	2.6340	.43831	1.0843	.38150	2.6340
.427	.43937	1.0844	.38156	2.6340	.43937	1.0844	.38156	2.6340
.428	.44043	1.0845	.38162	2.6340	.44043	1.0845	.38162	2.6340
.429	.44149	1.0846	.38168	2.6340	.44149	1.0846	.38168	2.6340
.430	.44255	1.0847	.38174	2.6340	.44255	1.0847	.38174	2.6340
.431	.44361	1.0848	.38180	2.6340	.44361	1.0848	.38180	2.6340
.432	.44467	1.0849	.38186	2.6340	.44467	1.0849	.38186	2.6340
.433	.44573	1.0850	.38192	2.6340	.44573	1.0850	.38192	2.6340
.434	.44679	1.0851	.38198	2.6340	.44679	1.0851	.38198	2.6340
.435	.44785	1.0852	.38204	2.6340	.44785	1.0852	.38204	2.6340
.436	.44891	1.0853	.38210	2.6340	.44891	1.0853	.38210	2.6340
.437	.44997	1.0854	.38216	2.6340	.44997	1.0854	.38216	2.6340
.438	.45103	1.0855	.38222	2.6340	.45103	1.0855	.38222	2.6340
.439	.45209	1.0856	.38228	2.6340	.45209	1.0856	.38228	2.6340
.440	.45315	1.0857	.38234	2.6340	.45315	1.0857	.38234	2.6340
.441	.45421	1.0858	.38240	2.6340	.45421	1.0858	.38240	2.6340
.442	.45527	1.0859	.38246	2.6340	.45527	1.0859	.38246	2.6340
.443	.45633	1.0860	.38252	2.6340	.45633	1.0860	.38252	2.6340
.444	.45739	1.0861	.38258	2.6340	.45739	1.0861	.38258	2.6340
.445	.45845	1.0862	.38264	2.6340	.45845	1.0862	.38264	2.6340
.446	.45951	1.0863	.38270	2.6340	.45951	1.0863	.38270	2.6340
.447	.46057	1.0864	.38276	2.6340	.46057	1.0864	.38276	2.6340
.448	.46163	1.0865	.38282	2.6340	.46163	1.0865	.38282	2.6340
.449	.46269	1.0866	.38288	2.6340	.46269	1.0866	.38288	2.6340
.450	.46375	1.0867	.38294	2.6340	.46375	1.0867	.38294	2.6340
.451	.46481	1.0868	.38300	2.6340	.46481	1.0868	.38300	2.6340
.452	.46587	1.0869	.38306	2.6340	.46587	1.0869	.38306	2.6340
.453	.46693	1.0870	.38312	2.6340	.46693	1.0870	.38312	2.6340
.454	.46799	1.0871	.38318	2.6340	.46799	1.0871	.38318	2.6340
.455	.46905	1.0872	.38324	2.6340	.46905	1.0872	.38324	2.6340
.456	.47011	1.0873	.38330	2.6340	.47011	1.0873	.38330	2.6340
.457	.47117	1.0874	.38336	2.6340	.47117	1.0874	.38336	2.6340
.458	.47223	1.0875	.38342	2.6340	.47223	1.0875	.38342	2.6340
.459	.47329	1.0876	.38348	2.6340	.47329	1.0876	.38348	2.6340
.460	.47435	1.0877	.38354	2.6340	.47435	1.0877	.38354	2.6340
.461	.47541	1.0878	.38360	2.6340	.47541	1.0878	.38360	2.6340
.462	.47647	1.0879	.38366	2.6340	.47647	1.0879	.38366	2.6340
.463	.47753	1.0880	.38372	2.6340	.47753	1.0880	.38372	2.6340
.464	.47859	1.0881	.38378	2.6340	.47859	1.0881	.38378	2.6340
.465	.47965	1.0882	.38384	2.6340	.47965	1.0882	.38384	2.6340
.466	.48071	1.0883	.38390	2.6340	.48071	1.0883	.38390	2.6340
.467	.48177	1.0884	.38396	2.6340	.48177	1.0884	.38396	2.6340
.468	.48283	1.0885	.38402	2.6340	.48283	1.0885	.38402	2.6340
.469	.48389	1.0886	.38408	2.6340	.48389	1.0886	.38408	2.6340
.470	.48495	1.0887	.38414	2.6340	.48495	1.0887	.38414	2.6340
.471	.48601	1.0888	.38420	2.6340	.48601	1.0888	.38420	2.6340
.472	.48707	1.0889	.38426	2.6340	.48707	1.0889	.38426	2.6340
.473	.48813	1.0890	.38432	2.6340	.48813	1.0890	.38432	2.6340
.474	.48919	1.0891	.38438	2.6340	.48919	1.0891	.38438	2.6340
.475	.49025	1.0892	.38444	2.6340	.49025	1.0892	.38444	2.6340
.476	.49131	1.0893	.38450	2.6340	.49131	1.0893	.38450	2.6340
.477	.49237	1.0894	.38456	2.6340	.49237	1.0894	.38456	2.6340
.478	.49343	1.0895	.38462	2.6340	.49343	1.0895	.38462	2.6340
.479	.49449	1.0896	.38468	2.6340	.49449	1.0896	.38468	2.6340
.480	.49555	1.0897	.38474	2.6340	.49555	1.0897	.38474	2.6340
.481	.49661	1.0898	.38480	2.6340	.49661	1.0898	.38480	2.6340
.482	.49767	1.0899	.38486	2.6340	.49767	1.0899	.38486	2.6340
.483	.49873	1.0900	.38492	2.6340	.49873	1.0900	.38492	2.6340
.484	.49979	1.0901	.38498	2.6340	.49979	1.0901	.38498	2.6340
.485	.50085	1.0902	.38504	2.6340	.50085	1.0902	.38504	2.6340
.486	.50191	1.0903	.38510	2.6340	.50191	1.0903	.38510	2.6340
.487	.50297	1.0904	.38516	2.6340	.50297	1.0904	.38516	2.6340
.488	.50403	1.0905	.38522	2.6340	.50403	1.0905	.38522	2.6340
.489	.50509	1.0906	.38528	2.6340	.50509	1.0906	.38528	2.6340
.490	.50615	1.0907	.38534	2.6340	.50615	1.0907	.38534	2.6340
.491	.50721	1.0908	.38540	2.6340	.50721	1.0908	.38540	2.6340
.492	.50827	1.0909	.38546	2.6340	.50827	1.0909	.38546	2.6340
.493	.50933	1.0910	.38552	2.6340	.50933	1.0910	.38552	2.6340
.494	.51039	1.0911	.38558	2.6340	.51039	1.0911	.38558	2.6340
.495	.51145	1.0912	.38564	2.6340	.51145	1.0912	.38564	2.6340
.496	.51251	1.0913	.38570	2.6340	.51251	1.0913	.38570	2.6340
.497	.51357	1.0914	.38576	2.6340	.51357	1.0914	.38576	2.6340
.498	.51463	1.0915	.38582	2.6340	.51463	1.0915	.38582	2.6340
.499	.51569	1.0916	.38588	2.6340	.51569	1.0916	.38588	2.6340
.500	.51675	1.0917	.38594	2.6340	.51675	1.0917	.38594	2.6340

SMITHSONIAN TABLE

Natural Hyperbolic Functions.

u	$\sinh u$	$u F'$	$\cosh u$	$u F'$	$\tanh u$	$u F'$	$\coth u$	$u F'$
0.490	0.49534	110.3	1.10207	46.3	0.42190	82.2	2.3202	46.2
.491	.49645	110.3	1.10344	46.6	.42272	82.1	.3205	46.0
.492	.49755	110.4	1.10480	46.8	.42354	82.1	.3210	45.7
.493	.49865	110.4	1.10617	46.9	.42436	82.0	.3215	45.5
.494	.49976	110.5	1.10754	47.0	.42518	81.9	.3219	45.3
0.495	0.47086	110.5	1.10891	47.1	0.42600	81.9	2.3214	45.1
.496	.47197	110.6	1.11028	47.2	.42682	81.8	.3219	44.9
.497	.47307	110.6	1.11165	47.3	.42764	81.7	.3224	44.7
.498	.47418	110.7	1.11302	47.4	.42845	81.6	.3229	44.5
.499	.47529	110.7	1.11439	47.5	.42927	81.6	.3233	44.3
0.490	0.47640	110.8	1.10768	47.6	0.43008	81.5	2.3221	44.1
.491	.47750	110.8	1.10905	47.6	.43090	81.4	.3227	43.9
.492	.47861	110.9	1.11042	47.6	.43171	81.4	.3232	43.7
.493	.47972	110.9	1.11179	47.6	.43253	81.3	.3237	43.5
.494	.48083	111.0	1.11316	47.7	.43334	81.3	.3242	43.3
0.495	0.48194	111.0	1.11007	47.8	0.43415	81.2	2.3233	43.1
.496	.48305	111.1	1.11144	47.8	.43496	81.1	.3239	42.9
.497	.48416	111.1	1.11281	47.8	.43577	81.0	.3244	42.7
.498	.48527	111.2	1.11418	47.8	.43658	80.9	.3249	42.5
.499	.48638	111.2	1.11555	47.9	.43739	80.9	.3253	42.3
0.490	0.48750	111.2	1.11290	47.9	0.43820	80.8	2.3221	42.1
.491	.48861	111.3	1.11427	47.9	.43901	80.7	.3259	41.9
.492	.48972	111.3	1.11564	47.9	.43982	80.7	.3264	41.7
.493	.49083	111.4	1.11701	47.9	.44063	80.6	.3269	41.5
.494	.49194	111.4	1.11838	48.0	.44144	80.5	.3274	41.3
0.495	0.49306	111.5	1.11495	48.1	0.44225	80.4	2.3213	41.1
.496	.49417	111.5	1.11632	48.1	.44306	80.4	.3279	40.9
.497	.49528	111.6	1.11769	48.1	.44387	80.3	.3284	40.7
.498	.49639	111.6	1.11906	48.1	.44468	80.2	.3289	40.5
.499	.49750	111.7	1.12043	48.2	.44549	80.2	.3294	40.4
0.490	0.49865	111.7	1.11743	48.2	0.44630	80.1	2.3209	40.2
.491	.49976	111.8	1.11880	48.2	.44711	80.0	.3299	40.0
.492	.50087	111.8	1.12017	48.2	.44792	79.9	.3304	39.8
.493	.50198	111.9	1.12154	48.2	.44873	79.9	.3309	39.7
.494	.50309	111.9	1.12291	48.3	.44954	79.8	.3314	39.5
0.495	0.50424	112.0	1.11994	50.4	0.45034	79.7	2.3210	39.3
.496	.50535	112.0	1.12131	50.5	.45115	79.7	.3319	39.1
.497	.50646	112.1	1.12268	50.5	.45196	79.6	.3324	38.9
.498	.50757	112.1	1.12405	50.6	.45277	79.5	.3329	38.7
.499	.50868	112.2	1.12542	50.6	.45358	79.4	.3334	38.6
0.490	0.50984	112.2	1.12247	51.0	0.45438	79.4	2.3206	38.4
.491	.51095	112.3	1.12384	51.1	.45519	79.3	.3339	38.2
.492	.51206	112.3	1.12521	51.2	.45600	79.2	.3344	38.1
.493	.51317	112.4	1.12658	51.3	.45681	79.2	.3349	37.9
.494	.51428	112.5	1.12795	51.4	.45762	79.1	.3354	37.8
0.495	0.51546	112.5	1.12503	51.5	0.45842	79.0	2.3206	37.6
.496	.51657	112.6	1.12640	51.7	.45923	78.9	.3359	37.5
.497	.51768	112.6	1.12777	51.8	.46004	78.9	.3364	37.3
.498	.51879	112.7	1.12914	51.9	.46085	78.8	.3369	37.1
.499	.51990	112.7	1.13051	52.0	.46166	78.7	.3374	37.0
0.500	0.52110	112.8	1.12763	52.1	0.46246	78.6	2.3200	36.8
$\tan^{-1} u$	$u F'$	$\sec u$	$u F'$	$\sin u$	$u F'$	$\csc u$	$u F'$	

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
0.900	0.52110	112.8	1.12763	5.41	0.36012	28.6	2.1690	35.8
.901	.52122	112.8	1.12815	5.41	.36020	28.6	.1601	35.7
.902	.52135	112.9	1.12867	5.41	.36028	28.5	.1596	35.5
.903	.52148	112.9	1.12919	5.41	.36037	28.5	.1590	35.4
.904	.52161	113.0	1.12972	5.40	.36045	28.4	.1583	35.2
0.905	0.52174	113.0	1.13025	5.40	0.36053	28.4	2.1457	35.0
.906	.52187	113.1	1.13077	5.40	.36061	28.2	.1441	35.0
.907	.52199	113.1	1.13130	5.40	.36069	28.1	.1435	35.2
.908	.52211	113.2	1.13183	5.40	.36078	28.1	.1429	35.6
.909	.52224	113.2	1.13236	5.41	.36087	28.0	.1414	35.4
0.510	0.52340	113.3	1.13389	5.42	0.36095	27.9	2.1420	35.4
.511	.52353	113.3	1.13441	5.41	.36102	27.9	.1411	35.1
.512	.52366	113.4	1.13493	5.43	.36110	27.8	.1400	35.0
.513	.52379	113.4	1.13545	5.40	.36118	27.7	.1394	34.8
.514	.52391	113.5	1.13598	5.42	.36126	27.6	.1389	34.7
0.515	0.52407	113.6	1.13657	5.43	0.36133	27.5	2.1405	34.5
.516	.52419	113.6	1.13711	5.40	.36141	27.5	.1390	34.4
.517	.52433	113.7	1.13765	5.40	.36149	27.4	.1380	34.3
.518	.52446	113.7	1.13819	5.41	.36157	27.3	.1374	34.1
.519	.52459	113.8	1.13873	5.43	.36165	27.3	.1368	34.0
0.520	0.52475	113.8	1.13932	5.41	0.36172	27.2	2.1393	33.8
.521	.52487	113.9	1.13984	5.45	.36180	27.1	.1380	33.8
.522	.52500	113.9	1.14036	5.46	.36188	27.0	.1366	33.5
.523	.52512	114.0	1.14089	5.47	.36196	27.0	.1353	33.4
.524	.52525	114.0	1.14141	5.48	.36204	26.9	.1349	33.3
0.525	0.52541	114.1	1.14199	5.49	0.36211	26.8	2.1378	33.1
.526	.52553	114.2	1.14251	5.51	.36219	26.7	.1373	33.0
.527	.52567	114.2	1.14303	5.52	.36227	26.7	.1360	33.0
.528	.52580	114.3	1.14355	5.53	.36235	26.6	.1356	32.7
.529	.52592	114.3	1.14407	5.54	.36243	26.5	.1353	32.6
0.530	0.52608	114.4	1.14477	5.55	0.36250	26.4	2.1362	32.4
.531	.52620	114.4	1.14529	5.56	.36258	26.4	.1350	32.3
.532	.52633	114.5	1.14581	5.57	.36266	26.3	.1346	32.2
.533	.52645	114.5	1.14633	5.59	.36274	26.2	.1340	32.0
.534	.52657	114.6	1.14685	5.60	.36282	26.1	.1334	31.9
0.535	0.52673	114.7	1.14756	5.61	0.36289	26.1	2.1342	31.8
.536	.52685	114.7	1.14808	5.62	.36297	26.0	.1330	31.7
.537	.52697	114.8	1.14860	5.63	.36305	25.9	.1326	31.5
.538	.52710	114.8	1.14912	5.64	.36313	25.8	.1322	31.4
.539	.52722	114.9	1.14964	5.65	.36321	25.8	.1316	31.3
0.540	0.52738	114.9	1.15035	5.67	0.36328	25.7	2.1351	31.1
.541	.52750	115.0	1.15087	5.68	.36336	25.6	.1345	31.0
.542	.52762	115.1	1.15139	5.69	.36344	25.5	.1342	30.9
.543	.52775	115.1	1.15191	5.70	.36352	25.5	.1336	30.8
.544	.52787	115.2	1.15243	5.71	.36360	25.4	.1330	30.6
0.545	0.52803	115.2	1.15314	5.72	0.36367	25.3	2.1340	30.5
.546	.52815	115.3	1.15366	5.71	.36375	25.2	.1330	30.4
.547	.52827	115.3	1.15418	5.75	.36383	25.2	.1320	30.3
.548	.52839	115.4	1.15470	5.76	.36391	25.1	.1310	30.2
.549	.52851	115.5	1.15522	5.77	.36399	25.0	.1300	30.0
0.550	0.52867	115.5	1.15593	5.78	0.36406	24.9	1.1379	29.9
x	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
0.600	0.639015	118.5	1.18547	61.7	0.53015	71.2	1.80.00	24.7
.601	.639834	118.6	.118610	61.8	.53070	71.1	.80.00	24.6
.602	.640653	118.7	.118741	61.9	.53122	71.0	.80.01	24.5
.603	.641471	118.7	.118874	62.0	.53178	70.9	.80.02	24.4
.604	.642289	118.8	.118992	62.1	.53230	70.9	.80.02	24.3
0.605	0.643099	118.9	1.18996	62.2	0.53280	70.8	1.80.03	24.2
.606	.643918	119.0	.119121	62.3	.53331	70.7	.80.03	24.1
.607	.644737	119.0	.119251	62.4	.53381	70.6	.80.04	24.0
.608	.645555	119.1	.119380	62.5	.53431	70.5	.80.04	23.9
.609	.646373	119.1	.119511	62.6	.53482	70.5	.80.05	23.8
0.610	0.647184	119.2	1.19548	62.7	0.53531	70.4	1.80.05	23.8
.611	.648003	119.2	.119674	62.8	.53581	70.3	.80.05	23.7
.612	.648821	119.2	.119804	62.9	.53631	70.2	.80.06	23.6
.613	.649640	119.3	.119934	63.0	.53681	70.2	.80.07	23.5
.614	.650458	119.3	.120064	63.1	.53731	70.1	.80.07	23.4
0.615	0.651269	119.3	1.12015	63.2	0.53781	70.0	1.80.08	23.3
.616	.652087	119.4	.120284	63.3	.53831	69.9	.80.08	23.2
.617	.652905	119.4	.120414	63.4	.53881	69.9	.80.09	23.1
.618	.653723	119.4	.120544	63.5	.53931	69.8	.80.09	23.0
.619	.654541	119.5	.120674	63.6	.53981	69.7	.80.10	22.9
0.620	0.655352	119.5	1.12080	63.7	0.54031	69.6	1.80.11	22.8
.621	.656170	119.5	.120930	63.8	.54081	69.5	.80.11	22.7
.622	.656988	119.6	.121060	63.9	.54131	69.5	.80.12	22.6
.623	.657806	119.6	.121190	64.0	.54181	69.4	.80.12	22.5
.624	.658624	119.6	.121320	64.1	.54231	69.3	.80.13	22.4
0.625	0.659435	120.2	1.12145	64.2	0.54281	69.2	1.80.13	22.3
.626	.660253	120.2	.121580	64.3	.54331	69.1	.80.13	22.2
.627	.661071	120.3	.121710	64.4	.54381	69.1	.80.14	22.1
.628	.661889	120.3	.121840	64.5	.54431	69.0	.80.14	22.0
.629	.662707	120.3	.121970	64.6	.54481	68.9	.80.15	21.9
0.630	0.663518	120.3	1.12210	64.7	0.54531	68.8	1.80.15	21.8
.631	.664336	120.4	.122230	64.8	.54581	68.8	.80.15	21.7
.632	.665154	120.4	.122360	64.9	.54631	68.7	.80.16	21.6
.633	.665972	120.4	.122490	65.0	.54681	68.7	.80.16	21.5
.634	.666790	120.5	.122620	65.1	.54731	68.6	.80.17	21.4
0.635	0.667601	120.5	1.12275	65.2	0.54781	68.5	1.80.17	21.3
.636	.668419	120.5	.122880	65.3	.54831	68.5	.80.17	21.2
.637	.669237	120.6	.123010	65.4	.54881	68.4	.80.18	21.1
.638	.670055	120.6	.123140	65.5	.54931	68.4	.80.18	21.0
.639	.670873	120.6	.123270	65.6	.54981	68.3	.80.19	20.9
0.640	0.671684	120.6	1.12340	65.7	0.55031	68.3	1.80.19	20.8
.641	.672502	120.7	.123530	65.8	.55081	68.2	.80.19	20.7
.642	.673320	120.7	.123660	65.9	.55131	68.2	.80.20	20.6
.643	.674138	120.7	.123790	66.0	.55181	68.1	.80.20	20.5
.644	.674956	120.8	.123920	66.1	.55231	68.1	.80.21	20.4
0.645	0.675767	120.8	1.12405	66.2	0.55281	68.0	1.80.21	20.3
.646	.676585	120.8	.124180	66.3	.55331	68.0	.80.21	20.2
.647	.677403	120.9	.124310	66.4	.55381	67.9	.80.22	20.1
.648	.678221	120.9	.124440	66.5	.55431	67.9	.80.22	20.0
.649	.679039	120.9	.124570	66.6	.55481	67.8	.80.23	19.9
0.650	0.679850	121.0	1.12470	66.7	0.55531	67.8	1.80.23	19.8
.651	.680668	121.0	.124830	66.8	.55581	67.7	.80.23	19.7
.652	.681486	121.0	.124960	66.9	.55631	67.7	.80.24	19.6
.653	.682304	121.1	.125090	67.0	.55681	67.6	.80.24	19.5
.654	.683122	121.1	.125220	67.1	.55731	67.6	.80.25	19.4
0.655	0.683933	121.1	1.12535	67.2	0.55781	67.5	1.80.25	19.3
.656	.684751	121.2	.125480	67.3	.55831	67.5	.80.25	19.2
.657	.685569	121.2	.125610	67.4	.55881	67.4	.80.26	19.1
.658	.686387	121.2	.125740	67.5	.55931	67.4	.80.26	19.0
.659	.687205	121.3	.125870	67.6	.55981	67.3	.80.27	18.9
0.660	0.688016	121.3	1.12600	67.7	0.56031	67.3	1.80.27	18.8
.661	.688834	121.3	.126130	67.8	.56081	67.3	.80.27	18.7
.662	.689652	121.4	.126260	67.9	.56131	67.2	.80.28	18.6
.663	.690470	121.4	.126390	68.0	.56181	67.2	.80.28	18.5
.664	.691288	121.4	.126520	68.1	.56231	67.1	.80.29	18.4
0.665	0.692099	121.5	1.12665	68.2	0.56281	67.1	1.80.29	18.3
.666	.692917	121.5	.126790	68.3	.56331	67.0	.80.29	18.2
.667	.693735	121.5	.126920	68.4	.56381	67.0	.80.30	18.1
.668	.694553	121.6	.127050	68.5	.56431	67.0	.80.30	18.0
.669	.695371	121.6	.127180	68.6	.56481	66.9	.80.31	17.9
0.670	0.696182	121.6	1.12731	68.7	0.56531	66.9	1.80.31	17.8
.671	.696999	121.7	.127440	68.8	.56581	66.9	.80.31	17.7
.672	.697817	121.7	.127570	68.9	.56631	66.8	.80.32	17.6
.673	.698635	121.7	.127700	69.0	.56681	66.8	.80.32	17.5
.674	.699453	121.8	.127830	69.1	.56731	66.7	.80.33	17.4
0.675	0.700264	121.8	1.12796	69.2	0.56781	66.7	1.80.33	17.3
.676	.701082	121.8	.128090	69.3	.56831	66.7	.80.33	17.2
.677	.701899	121.9	.128220	69.4	.56881	66.6	.80.34	17.1
.678	.702717	121.9	.128350	69.5	.56931	66.6	.80.34	17.0
.679	.703535	121.9	.128480	69.6	.56981	66.5	.80.35	16.9
0.680	0.704346	122.0	1.12861	69.7	0.57031	66.5	1.80.35	16.8
.681	.705164	122.0	.128740	69.8	.57081	66.5	.80.35	16.7
.682	.705982	122.0	.128870	69.9	.57131	66.4	.80.36	16.6
.683	.706799	122.1	.129000	70.0	.57181	66.4	.80.36	16.5
.684	.707617	122.1	.129130	70.1	.57231	66.3	.80.37	16.4
0.685	0.708428	122.1	1.12926	70.2	0.57281	66.3	1.80.37	16.3
.686	.709246	122.2	.129390	70.3	.57331	66.3	.80.37	16.2
.687	.710064	122.2	.129520	70.4	.57381	66.2	.80.38	16.1
.688	.710882	122.2	.129650	70.5	.57431	66.2	.80.38	16.0
.689	.711699	122.3	.129780	70.6	.57481	66.2	.80.39	15.9
.690	.712517	122.3	.129910	70.7	.57531	66.1	.80.39	15.8
0.691	0.713328	122.3	1.12999	70.8	0.57581	66.1	1.80.39	15.7
.692	.714146	122.4	.130120	70.9	.57631	66.1	.80.40	15.6
.693	.714964	122.4	.130250	71.0	.57681	66.0	.80.40	15.5
.694	.715782	122.4	.130380	71.1	.57731	66.0	.80.41	15.4
.695	.716599	122.5	.130510	71.2	.57781	66.0	.80.41	15.3
0.696	0.717410	122.5	1.13064	71.3	0.57831	65.9	1.80.41	15.2
.697	.718228	122.5	.130770	71.4	.57881	65.9	.80.42	15.1
.698	.719046	122.6	.130900	71.5	.57931	65.9	.80.42	15.0
.699	.719864	122.6	.131030	71.6	.57981	65.8	.80.43	14.9
0.700	0.720675	122.6	1.13116	71.7	0.58031	65.8	1.80.43	14.8
.701	.721493	122.7	.131290	71.8	.58081	65.8	.80.43	14.7
.702	.722311	122.7	.131420	71.9	.58131	65.7	.80.44	14.6
.703	.723129	122.7	.131550	72.0	.58181	65.7	.80.44	14.5
.704	.723947	122.8	.131680	72.1	.58231	65.7	.80.45	14.4
.705	.724765	122.8	.131810	72.2	.58281	65.6	.80.45	14.3
0.706	0.725576	122.8	1.13194	72.3	0.58331	65.6	1.80.45	14.2
.707	.726394	122.9	.132070	72.4	.58381	65.6	.80.46	14.1
.708	.727212	122.9	.132200	72.5	.58431	65.5	.80.46	14.0
.709	.728030	123.0	.132330	72.6	.58481	65.5	.80.47	13.9
.710	.728848	123.0	.132460	72.7	.58531	65.5	.80.47	13.8
0.711	0.729659	123.0	1.13259	72.8	0.58581	65.4	1.80.47	13.7
.712	.730477	123.1	.132720	72.9	.58631	65.4	.80.48	13.6
.713	.731295	123.1	.132850	73.0	.58681	65.4	.80.48	13.5
.714	.732113	123.1	.132980	73.1	.58731	65.3	.80.49	13.4
.715	.732931	123.2	.133110	73.2	.58781	65.3	.80.49	13.3
.716	.733749	123.2	.133240	73.3	.58831	65.3	.80.50	13.2
.717	.734567	123.2	.133370	73.4	.58881	65.2	.80.50	13.1
.718	.735385	123.3	.133500	73.5	.58931	65.2	.80.51	13.0
.719	.736203	123.3	.133630	73.6	.58981	65.2	.80.51	12.9
.720	.737021	123.3	.133760	73.7	.59031	65.1	.80.52	12.8
0.721	0.737832	123.4	1.13389	73.8	0.59081	65.1	1.80.52	12.7
.722	.738650	123.4	.134020	73.9	.59131	65.1	.80.52	12.6
.723	.739468	123.4	.134150	74.0	.59181	65.0	.80.53	12.5
.724	.740286	123.5	.134280	74.1	.59231	65.0	.80.53	12.4
.725	.741104	123.5	.134410	74.2	.59281	65.0	.80.54	12.3
.726	.741922	123.5	.134540	74.3	.59331	64.9	.80.54	12.2
.727	.742740	123.6	.134670	74.4	.59381	64.9	.80.55	12.1
.728	.743558	123.6	.134800	74.5	.59431	64.9	.80.55	12.0
.729	.744376	123.6	.134930	74.6	.59481	64.8	.80.56	11.9
.730	.745194	123.7	.13					

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
0.050	0.050025	1.21.9	1.21879	69.7	0.57467	67.3	1.7403	20.6
.051	.050077	1.21.0	.21910	69.8	.57431	67.2	.7412	20.5
.052	.050119	1.21.0	.21940	69.9	.57395	67.2	.7421	20.5
.053	.050161	1.21.1	.21970	70.0	.57359	67.1	.7431	20.4
.054	.050203	1.21.2	.22000	70.1	.57323	67.0	.7441	20.3
0.055	0.050245	1.21.3	1.22030	70.2	0.57287	66.9	1.7451	20.2
.056	.050287	1.21.3	.22060	70.3	.57250	66.9	.7460	20.2
.057	.050330	1.21.4	.22090	70.5	.57214	66.8	.7469	20.1
.058	.050372	1.21.4	.22121	70.7	.57178	66.7	.7478	20.0
.059	.050415	1.21.5	.22151	70.8	.57142	66.6	.7487	20.0
0.060	0.050457	1.21.6	1.22182	70.9	0.57106	66.5	1.7496	19.9
.061	.050500	1.21.7	.22213	71.0	.57070	66.5	.7505	19.8
.062	.050542	1.21.7	.22243	71.1	.57034	66.4	.7514	19.8
.063	.050585	1.21.8	.22274	71.3	.56998	66.3	.7523	19.7
.064	.050627	1.21.9	.22305	71.4	.56962	66.2	.7532	19.6
0.065	0.050670	1.22.0	1.22336	71.5	0.56926	66.2	1.7541	19.6
.066	.050712	1.22.0	.22366	71.6	.56890	66.1	.7550	19.5
.067	.050755	1.22.1	.22397	71.8	.56854	66.0	.7559	19.4
.068	.050797	1.22.1	.22428	71.9	.56818	65.9	.7568	19.4
.069	.050840	1.22.2	.22458	72.0	.56782	65.9	.7577	19.3
0.070	0.050882	1.22.3	1.22489	72.1	0.56746	65.8	1.7586	19.2
.071	.050925	1.22.4	.22520	72.2	.56710	65.7	.7595	19.2
.072	.050967	1.22.4	.22551	72.4	.56674	65.6	.7604	19.1
.073	.051010	1.22.5	.22581	72.5	.56638	65.5	.7613	19.0
.074	.051052	1.22.6	.22612	72.6	.56602	65.5	.7622	19.0
0.075	0.051095	1.22.7	1.22643	72.7	0.56566	65.4	1.7631	18.9
.076	.051137	1.22.7	.22674	72.9	.56530	65.3	.7640	18.8
.077	.051180	1.22.8	.22705	73.0	.56494	65.2	.7649	18.8
.078	.051222	1.22.9	.22736	73.1	.56458	65.2	.7658	18.7
.079	.051265	1.23.0	.22767	73.2	.56422	65.1	.7667	18.6
0.080	0.051307	1.23.1	1.22798	73.3	0.56386	65.0	1.7676	18.5
.081	.051350	1.23.1	.22829	73.5	.56350	64.9	.7685	18.5
.082	.051392	1.23.2	.22860	73.6	.56314	64.8	.7694	18.4
.083	.051435	1.23.2	.22891	73.7	.56278	64.8	.7703	18.4
.084	.051477	1.23.3	.22922	73.9	.56242	64.7	.7712	18.3
0.085	0.051520	1.23.4	1.22953	74.0	0.56206	64.6	1.7721	18.2
.086	.051562	1.23.5	.22984	74.1	.56170	64.5	.7730	18.2
.087	.051605	1.23.5	.23015	74.3	.56134	64.4	.7739	18.1
.088	.051647	1.23.6	.23046	74.4	.56098	64.4	.7748	18.1
.089	.051690	1.23.7	.23077	74.5	.56062	64.3	.7757	18.0
0.090	0.051732	1.23.8	1.23108	74.6	0.56026	64.2	1.7766	18.0
.091	.051775	1.23.8	.23139	74.7	.55990	64.2	.7775	17.9
.092	.051817	1.23.9	.23170	74.9	.55954	64.1	.7784	17.8
.093	.051860	1.24.0	.23201	75.0	.55918	64.0	.7793	17.8
.094	.051902	1.24.1	.23232	75.1	.55882	63.9	.7802	17.7
0.095	0.051945	1.24.1	1.23263	75.2	0.55846	63.8	1.7811	17.7
.096	.051987	1.24.2	.23294	75.4	.55810	63.8	.7820	17.6
.097	.052030	1.24.3	.23325	75.5	.55774	63.7	.7829	17.6
.098	.052072	1.24.3	.23356	75.6	.55738	63.6	.7838	17.5
.099	.052115	1.24.4	.23387	75.7	.55702	63.6	.7847	17.4
0.100	0.052157	1.24.5	1.23418	75.9	0.55666	63.5	1.7856	17.4
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F'$	$\cosh u$	$= F'$	$\sinh u$	$= F'$	$\cosh u$	$= F'$
0.700	0.75838	125.5	1.25517	75.9	0.60137	63.5	1.06360	17.4
.701	.75981	125.9	.25943	76.0	.60280	63.6	1.06509	17.5
.702	.76126	126.2	.26160	76.1	.60424	63.7	1.06653	17.6
.703	.76273	126.7	.26375	76.2	.60567	63.8	1.06801	17.7
.704	.76421	126.8	.26581	76.3	.60710	63.9	1.06947	17.1
0.705	0.76569	127.0	1.26788	76.5	0.60753	64.1	1.07090	17.1
.706	.76713	127.0	.26971	76.6	.60896	64.0	1.07233	17.2
.707	.76859	127.1	.27181	76.7	.61039	64.2	1.07376	17.3
.708	.76995	127.1	.27388	76.8	.61181	64.3	1.07519	17.4
.709	.77131	127.2	.27595	77.0	.61323	64.3	1.07661	17.0
0.710	0.77177	127.3	1.27582	77.1	0.61366	64.7	1.07705	16.8
.711	.77241	127.4	.27619	77.2	.61409	64.9	1.07848	16.8
.712	.77300	127.4	.27835	77.4	.61551	65.0	1.07991	16.7
.713	.77357	127.5	.28041	77.5	.61693	65.5	1.08135	16.7
.714	.77423	127.6	.28248	77.6	.61836	65.4	1.08278	16.9
0.715	0.77450	127.7	1.28455	77.7	0.61879	65.3	1.08321	16.5
.716	.77596	127.7	.28647	77.9	.61921	65.2	1.08465	16.5
.717	.77633	127.8	.28825	78.0	.61965	65.2	1.08599	16.4
.718	.77670	127.9	.29003	78.1	.62007	65.1	1.08741	16.4
.719	.77737	127.9	.29181	78.3	.62049	65.0	1.08884	16.3
0.720	0.77881	127.1	1.27099	78.4	0.62091	64.9	1.08927	16.3
.721	.77951	127.1	.27188	78.5	.62133	64.9	1.09070	16.2
.722	.78038	127.2	.27210	78.6	.62175	64.8	1.09212	16.2
.723	.78090	127.3	.27385	78.8	.62217	64.7	1.09354	16.1
.724	.78193	127.4	.27571	78.9	.62259	64.6	1.09495	16.1
0.725	0.78220	127.5	1.27453	79.0	0.62300	64.6	1.09537	16.0
.726	.78148	127.5	.27532	79.1	.62341	64.5	1.09679	16.0
.727	.78275	127.6	.27681	79.3	.62383	64.4	1.09820	15.9
.728	.78303	127.7	.27830	79.4	.62424	64.3	1.09961	15.9
.729	.78331	127.8	.27979	79.5	.62465	64.3	1.10102	15.8
0.730	0.78590	127.8	1.27809	79.7	0.62507	64.2	1.10143	15.8
.731	.78785	127.9	.27920	79.8	.62548	64.1	1.10284	15.7
.732	.78981	128.0	.28030	79.9	.62589	64.0	1.10425	15.7
.733	.79032	128.1	.28180	80.0	.62630	64.0	1.10566	15.6
.734	.79171	128.2	.28330	80.1	.62671	64.0	1.10707	15.6
0.735	0.79200	128.2	1.28239	80.3	0.62711	63.8	1.10747	15.5
.736	.79147	128.1	.28130	80.4	.62752	63.7	1.10888	15.5
.737	.79155	128.1	.28100	80.5	.62793	63.6	1.11028	15.4
.738	.79161	128.3	.28191	80.7	.62834	63.6	1.11168	15.4
.739	.79162	128.6	.28272	80.8	.62874	63.5	1.11308	15.3
0.740	0.79311	128.7	1.28552	80.9	0.62915	63.4	1.11348	15.3
.741	.79390	128.7	.28751	81.1	.62955	63.3	1.11488	15.2
.742	.79499	128.8	.28845	81.2	.62995	63.3	1.11628	15.2
.743	.79527	128.9	.28936	81.3	.63035	63.2	1.11768	15.1
.744	.79550	129.0	.29027	81.5	.63075	63.1	1.11908	15.1
0.745	0.79585	129.1	1.29090	81.6	0.63116	63.0	1.11948	15.0
.746	.79711	129.1	.29140	81.7	.63156	63.0	1.12088	15.0
.747	.79811	129.2	.29222	81.8	.63195	62.9	1.12228	14.9
.748	.79973	129.3	.29303	82.0	.63235	62.8	1.12368	14.9
.749	.80102	129.4	.29384	82.1	.63275	62.7	1.12508	14.8
0.750	0.80232	129.5	1.29468	82.2	0.63315	62.7	1.12548	14.8
u	$\tan u$	$= F'$	$\sec u$	$= F'$	$\sin u$	$= F'$	$\csc u$	$= F'$

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	sinh u	= F ₁ '	cosh u	= F ₂ '
0.750	0.81232	120.5	1.20998	84.2	0.63515	50.7	1.5744	1.18
.751	.81261	120.6	.20531	84.1	.63575	50.6	.5730	1.17
.752	.81290	120.7	.20063	84.0	.63631	50.5	.5715	1.17
.753	.81319	120.7	.20096	83.9	.63691	50.4	.5700	1.16
.754	.81349	120.8	.20058	83.8	.63753	50.3	.5685	1.16
0.755	0.81380	120.9	1.20881	83.9	0.63812	50.3	1.5791	1.16
.756	.81410	120.9	.20634	83.9	.63871	50.2	.5676	1.15
.757	.81440	121.0	.20612	83.8	.63931	50.1	.5662	1.15
.758	.81470	121.1	.20630	83.7	.63990	50.1	.5648	1.14
.759	.81500	121.2	.20614	83.6	.64049	50.0	.5633	1.14
0.760	0.81530	121.3	1.20807	83.5	0.64108	50.0	1.5690	1.13
.761	.81561	121.4	.20681	83.7	.64167	50.0	.5581	1.13
.762	.81591	121.5	.20661	83.6	.64225	50.0	.5570	1.12
.763	.81622	121.5	.20648	83.6	.64284	50.0	.5559	1.12
.764	.81652	121.6	.20634	83.5	.64343	50.0	.5547	1.12
0.765	0.81683	121.7	1.20716	83.4	0.64401	50.0	1.5548	1.11
.766	.81713	121.8	.20681	83.5	.64460	50.1	.5541	1.11
.767	.81743	121.9	.20685	83.4	.64518	50.1	.5530	1.10
.768	.81773	121.9	.20670	83.4	.64576	50.1	.5516	1.10
.769	.81803	121.1	.20651	83.7	.64635	50.2	.5502	1.10
0.770	0.81834	121.1	1.21139	83.6	0.64693	50.1	1.5458	1.09
.771	.81864	121.2	.21221	85.0	.64751	50.1	.5448	1.09
.772	.81894	121.3	.21200	85.1	.64809	50.0	.5430	1.08
.773	.81924	121.4	.21191	85.2	.64867	50.0	.5416	1.08
.774	.81954	121.5	.21179	85.4	.64925	50.0	.5402	1.07
0.775	0.81984	121.6	1.21995	85.5	0.64983	50.0	1.5389	1.07
.776	.82015	121.7	.21990	85.0	.65041	50.0	.5375	1.06
.777	.82045	121.7	.21971	85.0	.65098	50.0	.5361	1.06
.778	.82075	121.8	.21952	85.0	.65156	50.0	.5348	1.06
.779	.82105	121.9	.21928	85.0	.65213	50.0	.5334	1.05
0.780	0.82135	122.0	1.21994	85.1	0.65271	50.1	1.5321	1.05
.781	.82165	122.1	.21981	85.3	.65328	50.1	.5307	1.04
.782	.82195	122.2	.21966	85.4	.65385	50.2	.5294	1.04
.783	.82225	122.3	.21954	85.5	.65443	50.2	.5281	1.03
.784	.82255	122.3	.21940	85.7	.65500	50.1	.5267	1.03
0.785	0.82285	122.4	1.22126	85.8	0.65557	50.0	1.5254	1.03
.786	.82315	122.5	.22111	86.0	.65614	50.0	.5241	1.02
.787	.82345	122.6	.22090	86.1	.65671	50.0	.5228	1.02
.788	.82375	122.7	.22077	86.2	.65727	50.0	.5214	1.01
.789	.82405	122.8	.22075	86.3	.65784	50.0	.5201	1.01
0.790	0.82435	122.9	1.22862	86.5	0.65841	50.0	1.5188	1.01
.791	.82465	123.0	.22850	86.6	.65898	50.1	.5175	1.00
.792	.82495	123.0	.22837	86.7	.65954	50.1	.5162	1.00
.793	.82525	123.1	.22825	86.9	.66011	50.1	.5149	1.00
.794	.82555	123.2	.22813	86.0	.66067	50.1	.5136	1.00
0.795	0.82585	123.3	1.23201	86.1	0.66123	50.2	1.5123	1.00
.796	.82615	123.4	.23189	86.3	.66179	50.2	.5110	1.00
.797	.82645	123.5	.23176	86.1	.66236	50.1	.5098	1.00
.798	.82675	123.6	.23164	86.5	.66292	50.1	.5085	1.00
.799	.82705	123.7	.23153	86.7	.66348	50.0	.5072	1.00
0.800	0.82735	123.7	1.23743	86.8	0.66404	50.0	1.5050	1.00
u	tan gl u	= F ₁ '	sec gl u	= F ₂ '	sin gl u	= F ₁ '	cos gl u	= F ₂ '

Natural Hyperbolic Functions.

u	$\sinh u$	$= F'$	$\cosh u$	$= F'$	$\sinh u$	$= F'$	$\cosh u$	$= F'$
0.800	0.88811	1.337	1.33713	888	0.16604	55.0	1.5959	1.42
.801	.88834	1.338	.13382	889	.06606	55.8	.5962	1.45
.802	.88858	1.339	.13391	891	.06615	55.8	.5964	1.45
.803	.88881	1.340	.13391	892	.06627	55.2	.5962	1.45
.804	.88904	1.341	.13400	893	.06637	55.0	.5969	1.45
0.805	0.88928	1.342	1.34189	895	0.06648	55.5	1.5969	1.45
.806	.88951	1.343	.13429	896	.06658	55.5	.5971	1.45
.807	.88974	1.344	.13438	897	.06669	55.1	.5972	1.44
.808	.88997	1.345	.13458	899	.06680	55.1	.5979	1.44
.809	.89020	1.345	.13468	900	.06690	55.2	.5982	1.43
0.810	0.89043	1.346	1.34638	902	0.06699	55.2	1.5985	1.43
.811	.89066	1.347	.13479	903	.06701	55.1	.5982	1.43
.812	.89089	1.348	.13489	904	.06709	55.0	.5980	1.42
.813	.89112	1.349	.13499	905	.06721	54.9	.5988	1.42
.814	.89135	1.350	.13500	907	.06731	54.9	.5985	1.42
0.815	0.89158	1.351	1.35001	908	0.06731	54.8	1.5983	1.41
.816	.89181	1.352	.13512	910	.06739	54.7	.5981	1.41
.817	.89204	1.353	.13523	911	.06743	54.6	.5989	1.40
.818	.89227	1.354	.13533	912	.06750	54.6	.5987	1.40
.819	.89250	1.355	.13543	914	.06753	54.5	.5985	1.40
0.820	0.89273	1.355	1.35347	915	0.06757	54.4	1.5983	1.39
.821	.89296	1.356	.13558	916	.06761	54.4	.5981	1.39
.822	.89319	1.357	.13569	918	.06766	54.3	.5989	1.39
.823	.89342	1.358	.13579	919	.06770	54.2	.5987	1.38
.824	.89365	1.359	.13590	920	.06774	54.1	.5986	1.38
0.825	0.89388	1.360	1.35906	922	0.06777	54.1	1.5984	1.38
.826	.89411	1.361	.13606	923	.06781	54.0	.5982	1.37
.827	.89434	1.362	.13616	925	.06785	53.9	.5980	1.37
.828	.89457	1.363	.13626	926	.06789	53.8	.5988	1.37
.829	.89480	1.364	.13636	927	.06791	53.8	.5985	1.36
0.830	0.89503	1.365	1.35928	929	0.06794	53.7	1.5983	1.35
.831	.89526	1.366	.13639	930	.06798	53.6	.5981	1.35
.832	.89549	1.367	.13649	931	.06802	53.5	.5989	1.35
.833	.89572	1.367	.13659	933	.06806	53.5	.5987	1.34
.834	.89595	1.368	.13669	934	.06810	53.4	.5985	1.34
0.835	0.89618	1.369	1.35944	935	0.06813	53.3	1.5983	1.34
.836	.89641	1.370	.13654	937	.06817	53.3	.5981	1.33
.837	.89664	1.371	.13664	938	.06821	53.2	.5989	1.33
.838	.89687	1.372	.13674	939	.06825	53.1	.5987	1.33
.839	.89710	1.373	.13684	941	.06829	53.0	.5985	1.32
0.840	0.89733	1.374	1.35961	942	0.06831	53.0	1.5983	1.31
.841	.89756	1.375	.13691	944	.06835	52.9	.5981	1.31
.842	.89779	1.376	.13701	945	.06839	52.8	.5989	1.31
.843	.89802	1.377	.13711	946	.06843	52.7	.5987	1.30
.844	.89825	1.378	.13721	948	.06847	52.7	.5985	1.30
0.845	0.89848	1.379	1.35977	949	0.06849	52.6	1.5983	1.29
.846	.89871	1.380	.13727	951	.06853	52.5	.5981	1.29
.847	.89894	1.381	.13737	952	.06857	52.5	.5989	1.29
.848	.89917	1.382	.13747	953	.06861	52.4	.5987	1.28
.849	.89940	1.383	.13757	955	.06865	52.3	.5985	1.28
0.850	0.89963	1.384	1.35993	956	0.06867	52.2	1.5983	1.27
u	$\tan pd u$	$= F'$	$\sec pd u$	$= F'$	$\sin pd u$	$= F'$	$\csc pd u$	$= F'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	csch u	= F ₄ '
0.850	0.95612	138.4	1.38351	95.6	0.69167	52.2	1.4479	10.0
.851	.95730	138.4	.38420	95.7	.69189	52.2	.4439	10.0
.852	.95848	138.5	.38545	95.8	.69211	52.1	.4439	10.0
.853	.95967	138.6	.38671	95.9	.69233	52.0	.4438	10.0
.854	.96086	138.7	.38797	95.9	.69255	52.0	.4437	10.0
0.855	0.96205	138.8	1.38813	96.3	0.69367	51.9	1.4416	10.8
.856	.96323	138.9	.38939	96.4	.69410	51.8	.4405	10.8
.857	.96442	139.0	.39065	96.5	.69451	51.7	.4395	10.7
.858	.96561	139.1	.39192	96.7	.69533	51.7	.4384	10.7
.859	.96680	139.2	.39319	96.9	.69574	51.6	.4373	10.7
0.860	0.97000	139.3	1.39316	97.0	0.69686	51.5	1.4362	10.6
.861	.97139	139.4	.39443	97.1	.69777	51.5	.4352	10.6
.862	.97279	139.5	.39570	97.3	.69820	51.4	.4341	10.6
.863	.97418	139.6	.39698	97.4	.69860	51.3	.4331	10.5
.864	.97558	139.7	.39825	97.5	.69901	51.2	.4320	10.5
0.865	0.97698	139.8	1.39903	97.7	0.69982	51.2	1.4310	10.5
.866	.97838	139.9	.39991	97.8	.69994	51.1	.4299	10.4
.867	.97978	140.0	.40099	98.0	.69995	51.0	.4289	10.4
.868	.98118	140.1	.40207	98.1	.70000	51.0	.4278	10.4
.869	.98258	140.2	.40315	98.2	.70007	50.9	.4268	10.4
0.870	0.98398	140.3	1.40393	98.4	0.70137	50.8	1.4258	10.3
.871	.98538	140.4	.40502	98.5	.70188	50.7	.4247	10.3
.872	.98679	140.5	.40610	98.7	.70239	50.7	.4237	10.3
.873	.98819	140.6	.40719	98.8	.70290	50.6	.4227	10.2
.874	.98960	140.7	.40828	99.0	.70340	50.5	.4217	10.2
0.875	0.99101	140.8	1.40907	99.1	0.70391	50.5	1.4206	10.2
.876	.99241	140.9	.41016	99.2	.70441	50.4	.4196	10.2
.877	.99382	141.0	.41125	99.4	.70491	50.3	.4186	10.1
.878	.99523	141.1	.41234	99.5	.70542	50.2	.4176	10.1
.879	.99665	141.2	.41343	99.7	.70592	50.2	.4166	10.1
0.880	0.99806	141.3	1.41384	99.8	0.70642	50.1	1.4156	10.0
.881	.99947	141.4	.41493	99.9	.70692	50.0	.4146	10.0
.882	1.00089	141.5	.41602	100.1	.70742	50.0	.4136	10.0
.883	.00230	141.6	.41711	100.2	.70792	49.9	.4126	10.0
.884	.00372	141.7	.41820	100.4	.70842	49.8	.4116	9.9
0.885	1.00514	141.8	1.41785	100.5	0.70892	49.7	1.4106	9.9
.886	.00655	141.9	.41894	100.7	.70941	49.7	.4096	9.9
.887	.00797	142.0	.41993	100.8	.70991	49.6	.4086	9.8
.888	.00939	142.1	.42092	100.9	.71040	49.5	.4076	9.8
.889	.01081	142.2	.42191	101.1	.71090	49.5	.4067	9.8
0.890	1.01224	142.3	1.42289	101.2	0.71139	49.4	1.4057	9.8
.891	.01366	142.4	.42391	101.4	.71189	49.3	.4047	9.7
.892	.01508	142.5	.42492	101.5	.71238	49.3	.4037	9.7
.893	.01651	142.6	.42594	101.7	.71287	49.2	.4028	9.7
.894	.01794	142.7	.42695	101.8	.71336	49.1	.4018	9.7
0.895	1.01936	142.8	1.42797	101.9	0.71385	49.0	1.4008	9.6
.896	.02079	142.9	.42899	102.1	.71434	49.0	.3999	9.6
.897	.02222	143.0	.43001	102.2	.71483	48.9	.3989	9.6
.898	.02365	143.1	.43104	102.4	.71532	48.8	.3980	9.5
.899	.02508	143.2	.43206	102.5	.71581	48.8	.3970	9.5
0.900	1.02652	143.3	1.43309	102.7	0.71630	48.7	1.3961	9.5
u	tanh u	= F ₁	sech u	= F ₂	sinh u	= F ₃	cosh u	= F ₄

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
0.000	1.00521	1.43	1.43309	103	0.70180	48.7	1.4999	9.5
.001	.00295	1.43	.43111	103	.70078	48.6	.4981	9.5
.002	.00588	1.44	.43514	103	.70027	48.6	.4962	9.4
.003	.00881	1.44	.43917	103	.70070	48.5	.4943	9.4
.004	.01174	1.44	.44320	103	.70112	48.4	.4924	9.4
0.005	1.01570	1.44	1.43821	103	0.70170	48.4	1.4914	9.4
.006	.01863	1.44	.44227	103	.70221	48.4	.4895	9.3
.007	.02156	1.44	.44631	103	.70269	48.3	.4876	9.3
.008	.02449	1.44	.45034	103	.70317	48.3	.4857	9.3
.009	.02742	1.44	.45438	103	.70365	48.3	.4838	9.3
0.010	1.03130	1.44	1.44342	103	0.70413	48.3	1.4829	9.3
.011	.04424	1.44	.44446	104	.70460	48.2	.4810	9.2
.012	.04717	1.45	.44850	104	.70509	48.2	.4791	9.2
.013	.05010	1.45	.45255	105	.70557	48.2	.4772	9.2
.014	.05303	1.45	.45659	105	.70605	48.2	.4753	9.1
0.015	1.05681	1.45	1.44865	105	0.70653	48.2	1.4744	9.1
.016	.05974	1.45	.45069	105	.70700	48.2	.4725	9.1
.017	.06267	1.45	.45473	105	.70748	48.1	.4706	9.1
.018	.06560	1.45	.45878	105	.70795	48.1	.4687	9.0
.019	.06853	1.45	.46282	105	.70842	48.1	.4668	9.0
0.020	1.05830	1.45	1.45390	105	0.70890	48.1	1.4659	9.0
.021	.07124	1.45	.45495	106	.70937	48.0	.4640	9.0
.022	.07417	1.46	.45900	106	.70985	48.0	.4621	8.9
.023	.07710	1.46	.46305	106	.71032	48.0	.4602	8.9
.024	.08003	1.46	.46709	106	.71079	48.0	.4583	8.9
0.025	1.06267	1.46	1.45920	106	0.71125	48.0	1.4574	8.9
.026	.08313	1.46	.46025	105	.71172	48.0	.4555	8.8
.027	.08606	1.46	.46430	107	.71219	48.0	.4536	8.8
.028	.08899	1.46	.46835	107	.71266	48.0	.4517	8.8
.029	.09192	1.46	.47240	107	.71313	48.0	.4498	8.8
0.030	1.06598	1.46	1.46153	107	0.71359	48.0	1.4489	8.7
.031	.09481	1.47	.46950	107	.71406	48.0	.4470	8.7
.032	.09774	1.47	.47355	107	.71453	48.0	.4451	8.7
.033	.10067	1.47	.47760	107	.71499	48.0	.4432	8.7
.034	.10360	1.47	.48165	108	.71545	48.0	.4413	8.6
0.035	1.07711	1.47	1.46500	108	0.71592	48.0	1.4404	8.6
.036	.10654	1.47	.47965	108	.71638	48.0	.4385	8.6
.037	.10947	1.47	.48370	108	.71685	48.0	.4366	8.6
.038	.11240	1.47	.48775	108	.71731	48.0	.4347	8.5
.039	.11533	1.47	.49180	108	.71777	48.0	.4328	8.5
0.040	1.08098	1.48	1.47530	108	0.71824	48.0	1.4319	8.5
.041	.11825	1.48	.49535	109	.71870	48.0	.4299	8.5
.042	.12118	1.48	.49940	109	.71917	48.0	.4280	8.5
.043	.12411	1.48	.50345	109	.71963	48.0	.4261	8.4
.044	.12704	1.48	.50750	109	.72009	48.0	.4242	8.4
0.045	1.09207	1.48	1.48075	109	0.72055	48.0	1.4233	8.4
.046	.13000	1.48	.50880	109	.72102	48.0	.4214	8.4
.047	.13293	1.48	.51285	110	.72148	48.0	.4195	8.3
.048	.13586	1.48	.51690	110	.72194	48.0	.4176	8.3
.049	.13879	1.49	.52095	110	.72240	48.0	.4157	8.3
0.050	1.09948	1.49	1.48523	110	0.72287	48.0	1.4148	8.3
0	0	$= F_1'$	0	$= F_2'$	0	$= F_3'$	0	$= F_4'$

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
0.000	1.00000	1.00	1.00000	1.00	0.73078	45.3	1.3517	8.3
.001	.00000	1.00	.00000	1.00	.74044	45.2	.3599	8.2
.002	.00000	1.00	.00000	1.00	.75000	45.1	.3501	8.2
.003	.00000	1.00	.00000	1.00	.75956	45.1	.3403	8.2
.004	.00000	1.00	.00000	1.00	.76912	45.0	.3305	8.2
0.005	1.00000	1.00	1.00000	1.00	0.77868	44.9	1.3207	8.2
.006	.00000	1.00	.00000	1.00	.78824	44.9	.3108	8.1
.007	.00000	1.00	.00000	1.00	.79780	44.8	.3009	8.1
.008	.00000	1.00	.00000	1.00	.80736	44.7	.2910	8.1
.009	.00000	1.00	.00000	1.00	.81692	44.7	.2811	8.1
0.010	1.11139	1.00	1.01273	1.01	0.74438	44.6	1.3436	8.1
.011	.11139	1.00	.01273	1.01	.75394	44.5	.3438	8.0
.012	.22278	1.00	.02546	1.02	.76350	44.5	.3439	8.0
.013	.33417	1.00	.03819	1.03	.77306	44.4	.3440	8.0
.014	.44556	1.00	.05092	1.04	.78262	44.3	.3441	8.0
0.015	1.12160	1.00	1.00380	1.02	0.79218	44.3	1.3336	7.9
.016	.12160	1.00	.00380	1.02	.80174	44.2	.3338	7.9
.017	.24320	1.01	.00760	1.03	.81130	44.1	.3339	7.9
.018	.36480	1.01	.01140	1.04	.82086	44.1	.3340	7.9
.019	.48640	1.01	.01520	1.05	.83042	44.0	.3341	7.9
0.020	1.12913	1.01	1.00851	1.03	0.79870	43.9	1.3336	7.8
.021	.12913	1.01	.00851	1.03	.80826	43.9	.3337	7.8
.022	.25826	1.01	.01702	1.05	.81782	43.8	.3338	7.8
.023	.38739	1.01	.02553	1.07	.82738	43.7	.3339	7.8
.024	.51652	1.01	.03404	1.09	.83694	43.7	.3340	7.8
0.025	1.13699	1.01	1.01118	1.04	0.79940	43.6	1.3317	7.7
.026	.13699	1.01	.01118	1.04	.80896	43.6	.3318	7.7
.027	.27398	1.02	.02236	1.06	.81852	43.5	.3319	7.7
.028	.41097	1.02	.03354	1.08	.82808	43.4	.3320	7.7
.029	.54796	1.02	.04472	1.10	.83764	43.4	.3321	7.7
0.030	1.14457	1.02	1.01688	1.05	0.79907	43.3	1.3299	7.6
.031	.14457	1.02	.01688	1.05	.80863	43.2	.3299	7.6
.032	.28914	1.02	.03376	1.08	.81819	43.2	.3300	7.6
.033	.43371	1.02	.05064	1.11	.82775	43.1	.3301	7.6
.034	.57828	1.02	.06752	1.14	.83731	43.0	.3302	7.6
0.035	1.15219	1.03	1.02091	1.06	0.79952	42.9	1.3281	7.5
.036	.15219	1.03	.02091	1.06	.80908	42.9	.3281	7.5
.037	.30438	1.03	.04182	1.09	.81864	42.8	.3282	7.5
.038	.45657	1.03	.06273	1.12	.82820	42.7	.3283	7.5
.039	.60876	1.03	.08364	1.15	.83776	42.7	.3284	7.5
0.040	1.16993	1.03	1.02511	1.07	0.79999	42.6	1.3261	7.4
.041	.16993	1.03	.02511	1.07	.80955	42.6	.3261	7.4
.042	.33986	1.03	.05022	1.10	.81911	42.5	.3262	7.4
.043	.50979	1.03	.07533	1.13	.82867	42.4	.3263	7.4
.044	.67972	1.03	.10044	1.16	.83823	42.4	.3264	7.4
0.045	1.17959	1.04	1.03022	1.08	0.79940	42.3	1.3260	7.3
.046	.17959	1.04	.03022	1.08	.80896	42.3	.3260	7.3
.047	.35918	1.04	.06044	1.11	.81852	42.2	.3261	7.3
.048	.53877	1.04	.09066	1.14	.82808	42.1	.3262	7.3
.049	.71836	1.04	.12088	1.17	.83764	42.1	.3263	7.3
1.000	1.75520	1.54	1.51308	1.18	0.76130	42.0	1.3130	7.2
x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$

Natural Hyperbolic Functions.

x	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
1.000	1.17520	1.51	1.54308	1.18	0.76159	1.20	1.11410	7.2
.001	.0017520	1.51	.54426	1.18	.76281	1.20	.11428	7.2
.002	.0035040	1.51	.54543	1.18	.76403	1.20	.11446	7.2
.003	.0052560	1.51	.54660	1.18	.76525	1.20	.11464	7.2
.004	.0070080	1.51	.54777	1.18	.76647	1.20	.11482	7.2
1.005	1.18233	1.51	1.54894	1.18	0.76769	1.20	1.11499	7.1
.006	.0087753	1.51	.55010	1.18	.76891	1.20	.11517	7.1
.007	.0105367	1.51	.55131	1.19	.77013	1.20	.11535	7.1
.008	.0122981	1.51	.55253	1.19	.77135	1.20	.11553	7.1
.009	.0140595	1.51	.55374	1.19	.77257	1.20	.11571	7.1
1.010	1.18969	1.51	1.55491	1.19	0.77379	1.20	1.11589	7.1
.011	.0158223	1.51	.55610	1.19	.77501	1.20	.11607	7.0
.012	.0175837	1.51	.55730	1.19	.77623	1.20	.11625	7.0
.013	.0193451	1.51	.55850	1.20	.77745	1.20	.11643	7.0
.014	.0211065	1.51	.55969	1.20	.77867	1.20	.11661	7.0
1.015	1.19695	1.51	1.56088	1.20	0.77989	1.20	1.11679	6.9
.016	.0228709	1.51	.56208	1.20	.78111	1.20	.11697	6.9
.017	.0246323	1.51	.56328	1.20	.78233	1.20	.11715	6.9
.018	.0263937	1.51	.56449	1.20	.78355	1.20	.11733	6.9
.019	.0281551	1.51	.56569	1.20	.78477	1.20	.11751	6.9
1.020	1.20430	1.51	1.56689	1.21	0.78599	1.20	1.11769	6.9
.021	.0299164	1.51	.56809	1.21	.78721	1.20	.11787	6.9
.022	.0316778	1.51	.56929	1.21	.78843	1.20	.11805	6.8
.023	.0334392	1.51	.57049	1.21	.78965	1.20	.11823	6.8
.024	.0352006	1.51	.57169	1.21	.79087	1.20	.11841	6.8
1.025	1.21165	1.51	1.57289	1.21	0.79209	1.20	1.11859	6.8
.026	.0369620	1.51	.57409	1.21	.79331	1.20	.11877	6.8
.027	.0387234	1.51	.57529	1.21	.79453	1.20	.11895	6.8
.028	.0404848	1.51	.57649	1.21	.79575	1.20	.11913	6.7
.029	.0422462	1.51	.57769	1.21	.79697	1.20	.11931	6.7
1.030	1.21900	1.51	1.57889	1.21	0.79819	1.20	1.11949	6.7
.031	.0440076	1.51	.57989	1.21	.79941	1.20	.11967	6.7
.032	.0457690	1.51	.58109	1.21	.79963	1.20	.11985	6.7
.033	.0475304	1.51	.58229	1.21	.80085	1.20	.12003	6.6
.034	.0492918	1.51	.58349	1.21	.80207	1.20	.12021	6.6
1.035	1.22635	1.51	1.58469	1.21	0.80329	1.20	1.12039	6.6
.036	.0510532	1.51	.58589	1.21	.80451	1.20	.12057	6.6
.037	.0528146	1.51	.58709	1.21	.80573	1.20	.12075	6.6
.038	.0545760	1.51	.58829	1.21	.80695	1.20	.12093	6.6
.039	.0563374	1.51	.58949	1.21	.80817	1.20	.12111	6.5
1.040	1.23370	1.51	1.59089	1.21	0.80939	1.20	1.12129	6.5
.041	.0580988	1.51	.59209	1.21	.81061	1.20	.12147	6.5
.042	.0598602	1.51	.59329	1.21	.81183	1.20	.12165	6.5
.043	.0616216	1.51	.59449	1.21	.81305	1.20	.12183	6.5
.044	.0633830	1.51	.59569	1.21	.81427	1.20	.12201	6.5
1.045	1.24105	1.51	1.59689	1.21	0.81549	1.20	1.12219	6.4
.046	.0648444	1.51	.59809	1.21	.81671	1.20	.12237	6.4
.047	.0666058	1.51	.59929	1.21	.81793	1.20	.12255	6.4
.048	.0683672	1.51	.60049	1.21	.81915	1.20	.12273	6.4
.049	.0701286	1.51	.60169	1.21	.82037	1.20	.12291	6.4
1.050	1.24840	1.51	1.60309	1.21	0.82159	1.20	1.12309	6.4
u	$\tanh u$	$\cosh u$	$\sinh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
1.090	1.25386	160	1.60379	123	0.78181	18.9	1.2707	6.4
.091	.25546	161	.60595	126	.78210	18.8	.2788	6.3
.092	.25707	161	.60731	126	.78258	18.8	.2778	6.3
.093	.25867	161	.60796	126	.78267	18.7	.2772	6.3
.094	.26028	161	.60882	126	.78326	18.6	.2766	6.3
1.095	1.26189	161	1.61008	126	0.78374	18.6	1.2750	6.3
.096	.26350	161	.61135	126	.78413	18.5	.2753	6.3
.097	.26511	161	.61261	127	.78451	18.4	.2747	6.2
.098	.26673	161	.61388	127	.78490	18.4	.2741	6.2
.099	.26834	162	.61514	127	.78528	18.3	.2734	6.2
1.099	1.26996	162	1.61641	127	0.78566	18.3	1.2728	6.2
.100	.27157	162	.61768	127	.78605	18.3	.2722	6.2
.101	.27319	162	.61895	127	.78643	18.2	.2716	6.2
.102	.27481	162	.62023	127	.78681	18.1	.2710	6.2
.103	.27643	162	.62151	128	.78719	18.0	.2703	6.1
1.095	1.27806	162	1.62278	128	0.78757	18.0	1.2697	6.1
.106	.27968	162	.62406	128	.78795	17.9	.2691	6.1
.107	.28130	163	.62534	128	.78833	17.9	.2685	6.1
.108	.28293	163	.62662	128	.78871	17.8	.2679	6.1
.109	.28456	163	.62791	128	.78908	17.7	.2673	6.1
1.070	1.28619	163	1.62919	129	0.78946	17.7	1.2667	6.0
.071	.28782	163	.63048	129	.78984	17.6	.2661	6.0
.072	.28945	163	.63177	129	.79021	17.6	.2655	6.0
.073	.29108	163	.63306	129	.79059	17.5	.2649	6.0
.074	.29271	163	.63435	129	.79096	17.4	.2643	6.0
1.075	1.29435	164	1.63565	130	0.79134	17.4	1.2637	6.0
.076	.29598	164	.63694	130	.79171	17.3	.2631	6.0
.077	.29762	164	.63824	130	.79208	17.3	.2625	5.9
.078	.29926	164	.63954	130	.79245	17.2	.2619	5.9
.079	.30090	164	.64084	130	.79283	17.1	.2613	5.9
1.080	1.30254	164	1.64214	130	0.79320	17.1	1.2607	5.9
.081	.30418	164	.64344	130	.79357	17.0	.2601	5.9
.082	.30581	164	.64475	131	.79394	17.0	.2595	5.9
.083	.30747	165	.64605	131	.79431	16.9	.2589	5.8
.084	.30912	165	.64736	131	.79468	16.8	.2584	5.8
1.085	1.31077	165	1.64867	131	0.79505	16.8	1.2578	5.8
.086	.31242	165	.64998	131	.79541	16.7	.2572	5.8
.087	.31407	165	.65130	131	.79578	16.7	.2566	5.8
.088	.31572	165	.65261	132	.79615	16.6	.2560	5.8
.089	.31737	165	.65393	132	.79651	16.5	.2555	5.8
1.090	1.31903	166	1.65525	132	0.79688	16.5	1.2549	5.7
.091	.32068	166	.65657	132	.79724	16.4	.2543	5.7
.092	.32234	166	.65789	132	.79761	16.4	.2538	5.7
.093	.32400	166	.65921	132	.79797	16.3	.2532	5.7
.094	.32566	166	.66053	133	.79833	16.3	.2526	5.7
1.095	1.32732	166	1.66185	133	0.79870	16.2	1.2540	5.7
.096	.32898	166	.66319	133	.79906	16.2	.2515	5.7
.097	.33065	166	.66452	133	.79942	16.1	.2509	5.6
.098	.33231	167	.66585	133	.79978	16.0	.2503	5.6
.099	.33398	167	.66718	133	.80014	16.0	.2498	5.6
1.100	1.33565	167	1.66852	134	0.80050	15.9	1.2492	5.6
x	$\tanh x$	$= F_1'$	$\coth x$	$= F_2'$	$\sinh x$	$= F_3'$	$\cosh x$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.100	1.31955	167	1.66882	131	0.80090	35.9	1.2392	5.6
1.101	1.32734	167	1.66981	131	0.80145	35.9	1.2397	5.6
1.102	1.33513	167	1.67081	131	0.80200	35.9	1.2402	5.6
1.103	1.34292	167	1.67181	131	0.80255	35.7	1.2407	5.6
1.104	1.35071	167	1.67281	131	0.80310	35.7	1.2412	5.5
1.105	1.35850	168	1.67382	131	0.80365	35.6	1.2417	5.5
1.106	1.36629	168	1.67482	133	0.80420	35.6	1.2422	5.5
1.107	1.37408	168	1.67582	135	0.80475	35.5	1.2427	5.5
1.108	1.38187	168	1.67682	135	0.80530	35.5	1.2432	5.5
1.109	1.38966	168	1.67782	135	0.80585	35.4	1.2437	5.5
1.110	1.39745	168	1.67882	135	0.80640	35.3	1.2442	5.5
1.111	1.40524	168	1.67982	135	0.80695	35.3	1.2447	5.5
1.112	1.41303	168	1.68082	135	0.80750	35.2	1.2452	5.4
1.113	1.42082	169	1.68182	135	0.80805	35.2	1.2457	5.4
1.114	1.42861	169	1.68282	136	0.80860	35.1	1.2462	5.4
1.115	1.43640	169	1.68382	136	0.80915	35.1	1.2467	5.4
1.116	1.44419	169	1.68482	136	0.80970	35.0	1.2472	5.4
1.117	1.45198	169	1.68582	136	0.81025	35.0	1.2477	5.4
1.118	1.45977	169	1.68682	137	0.81080	34.9	1.2482	5.4
1.119	1.46756	169	1.68782	137	0.81135	34.8	1.2487	5.3
1.120	1.47535	170	1.68882	137	0.81190	34.8	1.2492	5.3
1.121	1.48314	170	1.68982	137	0.81245	34.7	1.2497	5.3
1.122	1.49093	170	1.69082	137	0.81300	34.7	1.2502	5.3
1.123	1.49872	170	1.69182	137	0.81355	34.6	1.2507	5.3
1.124	1.50651	170	1.69282	138	0.81410	34.6	1.2512	5.3
1.125	1.51430	170	1.69382	138	0.81465	34.5	1.2517	5.3
1.126	1.52209	170	1.69482	138	0.81520	34.5	1.2522	5.3
1.127	1.52988	171	1.69582	138	0.81575	34.4	1.2527	5.2
1.128	1.53767	171	1.69682	138	0.81630	34.4	1.2532	5.2
1.129	1.54546	171	1.69782	138	0.81685	34.3	1.2537	5.2
1.130	1.55325	171	1.69882	139	0.81740	34.2	1.2542	5.2
1.131	1.56104	171	1.69982	139	0.81795	34.2	1.2547	5.2
1.132	1.56883	171	1.70082	139	0.81850	34.1	1.2552	5.2
1.133	1.57662	171	1.70182	139	0.81905	34.1	1.2557	5.2
1.134	1.58441	171	1.70282	139	0.81960	34.0	1.2562	5.2
1.135	1.59220	172	1.70382	139	0.82015	34.0	1.2567	5.1
1.136	1.60000	172	1.70482	140	0.82070	34.0	1.2572	5.1
1.137	1.60779	172	1.70582	140	0.82125	33.9	1.2577	5.1
1.138	1.61558	172	1.70682	140	0.82180	33.8	1.2582	5.1
1.139	1.62337	172	1.70782	140	0.82235	33.7	1.2587	5.1
1.140	1.63116	172	1.70882	140	0.82290	33.7	1.2592	5.1
1.141	1.63895	172	1.70982	141	0.82345	33.7	1.2597	5.1
1.142	1.64674	173	1.71082	141	0.82400	33.6	1.2602	5.1
1.143	1.65453	173	1.71182	141	0.82455	33.5	1.2607	5.1
1.144	1.66232	173	1.71282	141	0.82510	33.5	1.2612	5.0
1.145	1.67011	173	1.71382	141	0.82565	33.4	1.2617	5.0
1.146	1.67790	173	1.71482	141	0.82620	33.3	1.2622	5.0
1.147	1.68569	173	1.71582	142	0.82675	33.3	1.2627	5.0
1.148	1.69348	173	1.71682	142	0.82730	33.2	1.2632	5.0
1.149	1.70127	173	1.71782	142	0.82785	33.2	1.2637	5.0
1.150	1.70906	174	1.71882	142	0.82840	33.1	1.2642	5.0
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
1.150	1.15008	174	1.71741	142	0.81775	33.1	1.2220	5.0
.151	1.15153	174	1.71881	142	0.81899	33.1	1.2224	4.9
.152	1.15297	174	1.72026	142	0.82012	33.0	1.2219	4.9
.153	1.15440	174	1.72168	141	0.82125	33.0	1.2214	4.9
.154	1.15583	174	1.72311	141	0.82237	32.9	1.2209	4.9
1.155	1.15726	174	1.72454	141	0.82350	32.9	1.2204	4.9
.156	1.15869	175	1.72597	141	0.82463	32.8	1.2199	4.9
.157	1.16012	175	1.72740	141	0.82575	32.8	1.2194	4.9
.158	1.16155	175	1.72883	141	0.82688	32.7	1.2189	4.9
.159	1.16298	175	1.73026	141	0.82801	32.6	1.2185	4.8
1.160	1.16441	175	1.73169	141	0.82914	32.6	1.2180	4.8
.161	1.16584	175	1.73312	141	0.83027	32.5	1.2175	4.8
.162	1.16727	175	1.73455	141	0.83140	32.5	1.2170	4.8
.163	1.16870	175	1.73598	141	0.83253	32.4	1.2165	4.8
.164	1.17013	175	1.73741	141	0.83366	32.4	1.2160	4.8
1.165	1.17156	175	1.73884	141	0.83479	32.3	1.2156	4.8
.166	1.17299	175	1.74027	141	0.83592	32.3	1.2151	4.8
.167	1.17442	175	1.74170	141	0.83705	32.2	1.2146	4.8
.168	1.17585	175	1.74313	141	0.83818	32.2	1.2141	4.7
.169	1.17728	175	1.74456	141	0.83931	32.1	1.2137	4.7
1.170	1.17871	177	1.74599	140	0.84044	32.1	1.2132	4.7
.171	1.18014	177	1.74742	140	0.84157	32.0	1.2127	4.7
.172	1.18157	177	1.74885	140	0.84270	32.0	1.2123	4.7
.173	1.18300	177	1.75028	140	0.84383	31.9	1.2118	4.7
.174	1.18443	177	1.75171	140	0.84496	31.8	1.2113	4.7
1.175	1.18586	177	1.75314	140	0.84609	31.8	1.2108	4.7
.176	1.18729	177	1.75457	140	0.84722	31.7	1.2104	4.7
.177	1.18872	178	1.75600	140	0.84835	31.7	1.2099	4.6
.178	1.19015	178	1.75743	140	0.84948	31.6	1.2095	4.6
.179	1.19158	178	1.75886	140	0.85061	31.6	1.2090	4.6
1.180	1.19301	178	1.76029	140	0.85174	31.5	1.2086	4.6
.181	1.19444	178	1.76172	140	0.85287	31.5	1.2081	4.6
.182	1.19587	178	1.76315	140	0.85400	31.4	1.2076	4.6
.183	1.19730	179	1.76458	140	0.85513	31.4	1.2072	4.6
.184	1.19873	179	1.76601	140	0.85626	31.3	1.2067	4.6
1.185	1.19916	179	1.76744	140	0.85739	31.3	1.2062	4.6
.186	1.20059	179	1.76887	140	0.85852	31.2	1.2058	4.5
.187	1.20202	179	1.77030	140	0.85965	31.2	1.2053	4.5
.188	1.20345	179	1.77173	140	0.86078	31.1	1.2049	4.5
.189	1.20488	179	1.77316	140	0.86191	31.1	1.2044	4.5
1.190	1.20631	180	1.77459	140	0.86304	31.0	1.2040	4.5
.191	1.20774	180	1.77602	140	0.86417	31.0	1.2035	4.5
.192	1.20917	180	1.77745	140	0.86530	30.9	1.2031	4.5
.193	1.21060	180	1.77888	140	0.86643	30.9	1.2026	4.5
1.194	1.21203	180	1.78031	140	0.86756	30.8	1.2022	4.5
.195	1.21346	180	1.78174	140	0.86869	30.8	1.2017	4.4
.196	1.21489	180	1.78317	140	0.86982	30.7	1.2013	4.4
.197	1.21632	181	1.78460	140	0.87095	30.7	1.2009	4.4
.198	1.21775	181	1.78603	141	0.87208	30.6	1.2004	4.4
.199	1.21918	181	1.78746	141	0.87321	30.6	1.2000	4.4
1.200	1.22061	181	1.78889	141	0.87434	30.5	1.1995	4.4
x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.200	1.89496	181	1.81066	151	0.81395	203	1.1945	4.4
.201	.51127	181	.81217	151	.81396	203	.1941	4.4
.202	.51309	181	.81398	151	.81430	204	.1939	4.4
.203	.51490	182	.81579	151	.81457	203	.1936	4.4
.204	.51672	182	.81761	152	.81489	203	.1933	4.3
1.205	1.51853	182	1.81943	152	0.81517	202	1.1921	4.3
.205	.52035	182	.82124	152	.81548	202	.1919	4.3
.207	.52217	182	.82307	152	.81578	201	.1916	4.3
.208	.52400	182	.82490	152	.81608	201	.1913	4.3
.209	.52582	182	.82673	153	.81638	200	.1910	4.3
1.210	1.52764	183	1.82855	153	0.81668	200	1.1902	4.3
.211	.52947	183	.83037	153	.81698	200	.1900	4.3
.212	.53130	183	.83220	153	.81728	200	.1897	4.3
.213	.53313	183	.83403	153	.81758	200	.1894	4.3
.214	.53496	183	.83587	153	.81788	200	.1892	4.3
1.215	1.53679	183	1.83769	154	0.81817	200	1.1884	4.2
.215	.53861	183	.83951	154	.81847	200	.1881	4.2
.217	.54044	184	.84134	154	.81877	200	.1878	4.2
.218	.54227	184	.84317	154	.81907	200	.1875	4.2
.219	.54410	184	.84500	154	.81937	200	.1872	4.2
1.220	1.54593	184	1.84682	155	0.81967	200	1.1864	4.2
.221	.54776	184	.84865	155	.81997	200	.1861	4.2
.222	.54959	184	.85048	155	.82027	200	.1858	4.2
.223	.55142	185	.85231	155	.82057	200	.1855	4.2
.224	.55325	185	.85414	155	.82087	200	.1852	4.1
1.225	1.55508	185	1.85596	155	0.82117	200	1.1844	4.1
.225	.55691	185	.85779	155	.82147	200	.1841	4.1
.227	.55874	185	.85962	156	.82177	200	.1838	4.1
.228	.56057	185	.86145	156	.82207	200	.1835	4.1
.229	.56240	186	.86328	156	.82237	200	.1832	4.1
1.230	1.56423	186	1.86510	156	0.82267	200	1.1824	4.1
.231	.56606	186	.86693	157	.82297	200	.1821	4.1
.232	.56789	186	.86876	157	.82327	200	.1818	4.1
.233	.56972	186	.87059	157	.82357	200	.1815	4.1
.234	.57155	186	.87242	157	.82387	200	.1812	4.1
1.235	1.57338	186	1.87424	157	0.82417	200	1.1804	4.0
.235	.57521	187	.87607	158	.82447	200	.1801	4.0
.237	.57704	187	.87790	158	.82477	200	.1798	4.0
.238	.57887	187	.87973	158	.82507	200	.1795	4.0
.239	.58070	187	.88156	158	.82537	200	.1792	4.0
1.240	1.58253	187	1.88338	158	0.82567	200	1.1784	4.0
.240	.58436	187	.88521	158	.82597	200	.1781	4.0
.242	.58619	188	.88704	159	.82627	200	.1778	4.0
.243	.58802	188	.88887	159	.82657	200	.1775	4.0
.244	.58985	188	.89070	159	.82687	200	.1772	4.0
1.245	1.59168	188	1.89252	159	0.82717	200	1.1764	3.9
.245	.59351	188	.89435	159	.82747	200	.1761	3.9
.247	.59534	188	.89618	160	.82777	200	.1758	3.9
.248	.59717	189	.89801	160	.82807	200	.1755	3.9
.249	.59900	189	.89984	160	.82837	200	.1752	3.9
1.250	1.60083	189	1.89888	160	0.82867	200	1.1744	3.9
u	$\tanh u$	$= F_1'$	$\coth u$	$= F_2'$	$\sinh u$	$= F_3'$	$\cosh u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.250	1.60192	189	1.88842	160	0.84828	28.0	1.1789	3.0
.251	.60381	189	.80003	160	.84836	28.0	.1785	3.0
.252	.60570	189	.80163	161	.84884	27.0	.1781	3.0
.253	.60759	189	.80324	161	.84932	27.0	.1777	3.0
.254	.60949	189	.80485	161	.84980	27.0	.1773	3.0
1.255	1.61138	190	1.89046	161	0.84968	27.8	1.1769	3.0
.256	.61328	190	.80207	161	.84996	27.8	.1765	3.0
.257	.61518	190	.80368	162	.85023	27.7	.1761	3.0
.258	.61708	190	.80530	162	.85051	27.7	.1758	3.0
.259	.61898	190	.80692	162	.85079	27.6	.1754	3.0
1.260	1.62088	190	1.90454	162	0.85106	27.6	1.1750	3.0
.261	.62279	191	.80816	162	.85134	27.5	.1746	3.0
.262	.62470	191	.80978	162	.85161	27.5	.1742	3.0
.263	.62661	191	.81141	163	.85189	27.4	.1738	3.0
.264	.62851	191	.81304	163	.85216	27.4	.1735	3.0
1.265	1.63043	191	1.91269	163	0.85244	27.3	1.1731	3.0
.266	.63234	191	.81430	163	.85271	27.3	.1727	3.0
.267	.63426	192	.81593	163	.85298	27.2	.1724	3.0
.268	.63617	192	.81757	164	.85325	27.2	.1720	3.0
.269	.63809	192	.81920	164	.85353	27.1	.1716	3.0
1.270	1.64001	192	1.92081	164	0.85380	27.1	1.1712	3.0
.271	.64193	192	.82248	164	.85407	27.1	.1709	3.0
.272	.64385	192	.82413	165	.85434	27.0	.1705	3.0
.273	.64578	193	.82577	165	.85461	27.0	.1701	3.0
.274	.64771	193	.82742	165	.85488	26.0	.1698	3.0
1.275	1.64964	193	1.92997	165	0.85515	26.9	1.1694	3.0
.276	.65157	193	.82972	165	.85542	26.8	.1690	3.0
.277	.65350	193	.83137	165	.85568	26.8	.1687	3.0
.278	.65543	193	.83302	166	.85595	26.7	.1683	3.0
.279	.65736	194	.83468	166	.85622	26.7	.1679	3.0
1.280	1.65930	194	1.93734	166	0.85648	26.6	1.1676	3.0
.281	.66124	194	.83600	166	.85675	26.6	.1672	3.0
.282	.66318	194	.83766	166	.85702	26.6	.1668	3.0
.283	.66512	194	.83933	167	.85728	26.5	.1665	3.0
.284	.66706	194	.84100	167	.85755	26.5	.1661	3.0
1.285	1.66901	195	1.94596	167	0.85781	26.4	1.1658	3.0
.286	.67096	195	.84233	167	.85808	26.4	.1654	3.0
.287	.67290	195	.84400	167	.85834	26.3	.1650	3.0
.288	.67485	195	.84568	167	.85860	26.3	.1647	3.0
.289	.67680	195	.84735	168	.85886	26.2	.1643	3.0
1.290	1.67876	195	1.95403	168	0.85913	26.2	1.1640	3.0
.291	.68071	196	.84971	168	.85940	26.1	.1636	3.0
.292	.68267	196	.85139	168	.85965	26.1	.1633	3.0
.293	.68463	196	.85307	168	.85991	26.1	.1629	3.0
.294	.68659	196	.85476	169	.86017	26.0	.1626	3.0
1.295	1.68855	196	1.96245	169	0.86043	26.0	1.1622	3.0
.296	.69051	196	.85614	169	.86069	25.0	.1619	3.0
.297	.69248	197	.85783	169	.86095	25.0	.1615	3.0
.298	.69444	197	.85952	169	.86121	25.0	.1612	3.0
.299	.69641	197	.86122	170	.86147	25.0	.1608	3.0
1.300	1.69838	197	1.97091	170	0.86172	25.7	1.1605	3.5
u	$\tanh u$	$= F_1'$	$\coth u$	$= F_2'$	$\sinh u$	$= F_3'$	$\cosh u$	$= F_4'$

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
1.300	1.66848	107	1.97001	170	0.84172	25.7	1.1805	3.5
.301	.70015	107	.97010	170	.84098	25.7	.3401	3.5
.302	.70233	107	.97131	170	.84221	25.7	.1923	3.5
.303	.70450	108	.97262	170	.84349	25.6	.1501	3.5
.304	.70668	108	.97392	171	.84473	25.6	.1501	3.4
1.305	1.70886	108	1.97523	171	0.84590	25.5	1.1387	3.4
.305	.71002	108	.97644	171	.84526	25.5	.1521	3.4
.307	.71222	108	.97865	171	.84651	25.4	.1521	3.4
.308	.71440	108	.98150	171	.84777	25.4	.1527	3.4
.309	.71659	109	.98481	172	.84902	25.3	.1524	3.4
1.310	1.71878	109	1.98610	172	0.85028	25.3	1.1550	3.4
.311	.72097	109	.98772	172	.85153	25.3	.1517	3.4
.312	.72316	109	.99141	172	.85278	25.2	.1511	3.4
.313	.72535	109	.99316	172	.85403	25.2	.1500	3.4
.314	.72754	109	.99489	173	.85528	25.1	.1552	3.4
1.315	1.72974	200	1.99661	173	0.85654	25.1	1.1551	3.3
.316	.73193	200	.99834	173	.85779	25.0	.1550	3.3
.317	.73414	200	2.00007	173	.85904	25.0	.1547	3.3
.318	.73634	200	.00181	173	.86029	25.0	.1541	3.3
.319	.73854	200	.00354	174	.86153	24.9	.1539	3.3
1.320	1.73874	201	2.00528	174	0.86278	24.9	1.1537	3.3
.321	.74095	201	.00602	174	.86403	24.8	.1531	3.3
.322	.74316	201	.00776	174	.86528	24.8	.1530	3.3
.323	.74537	201	.01050	174	.86653	24.7	.1527	3.3
.324	.74758	201	.01225	175	.86778	24.7	.1521	3.3
1.325	1.74879	201	2.01249	175	0.86902	24.7	1.1530	3.3
.326	.75099	202	.01521	175	.87027	24.6	.1517	3.3
.327	.75322	202	.01793	175	.87151	24.6	.1511	3.3
.328	.75544	202	.01925	175	.87276	24.5	.1511	3.2
.329	.75765	202	.02100	176	.87400	24.5	.1507	3.2
1.330	1.75886	202	2.02276	176	0.87525	24.4	1.1501	3.2
.331	.76107	202	.02452	176	.87649	24.4	.1501	3.2
.332	.76328	203	.02728	176	.87773	24.4	.1498	3.2
.333	.76549	203	.02904	176	.87898	24.3	.1498	3.2
.334	.76770	203	.03081	177	.88022	24.3	.1490	3.2
1.335	1.76891	203	2.03158	177	0.88147	24.2	1.1498	3.2
.336	.77112	203	.03335	177	.88271	24.2	.1495	3.2
.337	.77333	204	.03512	177	.88395	24.1	.1495	3.2
.338	.77554	204	.03789	177	.88519	24.1	.1490	3.2
.339	.77775	204	.03967	178	.88643	24.1	.1475	3.2
1.340	1.77896	204	2.04161	178	0.88767	24.0	1.1472	3.2
.341	.78117	204	.04221	178	.88891	24.0	.1464	3.2
.342	.78338	204	.04401	178	.89015	24.0	.1460	3.1
.343	.78559	205	.04579	178	.89139	24.0	.1463	3.1
.344	.78780	205	.04758	179	.89263	24.0	.1460	3.1
1.345	1.78901	205	2.04995	179	0.89387	23.8	1.1495	3.1
.346	.79122	205	.05115	179	.89511	23.8	.1451	3.1
.347	.79343	205	.05293	179	.89635	23.7	.1450	3.1
.348	.79564	205	.05474	179	.89759	23.7	.1447	3.1
.349	.79785	206	.05653	180	.89883	23.6	.1444	3.1
1.350	1.79906	206	2.05813	180	0.89905	23.6	1.1441	3.1
u	len of u	= F ₁	sec gd u	= F ₂	sin gd u	= F ₃	csc gd u	= F ₄

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
1.350	1.79996	2.05	0.87405	1.1441	1.351	1.80115	2.05	1.1438
1.351	1.80115	2.05	0.87430	1.1435	1.352	1.80241	2.05	1.1432
1.352	1.80241	2.05	0.87452	1.1428	1.353	1.80368	2.05	1.1425
1.353	1.80368	2.05	0.87470	1.1419	1.354	1.80494	2.05	1.1416
1.354	1.80494	2.07	0.87499	1.1413	1.355	1.80621	2.07	1.1407
1.355	1.80621	2.07	0.87523	1.1400	1.356	1.80748	2.07	1.1395
1.356	1.80748	2.07	0.87546	1.1388	1.357	1.80875	2.07	1.1382
1.357	1.80875	2.07	0.87568	1.1375	1.358	1.81002	2.07	1.1369
1.358	1.81002	2.07	0.87590	1.1360	1.359	1.81129	2.07	1.1348
1.359	1.81129	2.07	0.87616	1.1341	1.360	1.81256	2.08	1.1328
1.360	1.81256	2.08	0.87639	1.1328	1.361	1.81383	2.08	1.1317
1.361	1.81383	2.08	0.87662	1.1310	1.362	1.81510	2.08	1.1298
1.362	1.81510	2.08	0.87680	1.1288	1.363	1.81637	2.08	1.1282
1.363	1.81637	2.08	0.87700	1.1269	1.364	1.81764	2.08	1.1265
1.364	1.81764	2.08	0.87722	1.1248	1.365	1.81891	2.09	1.1245
1.365	1.81891	2.09	0.87735	1.1230	1.366	1.82018	2.09	1.1228
1.366	1.82018	2.09	0.87758	1.1215	1.367	1.82145	2.09	1.1210
1.367	1.82145	2.09	0.87781	1.1200	1.368	1.82272	2.09	1.1195
1.368	1.82272	2.09	0.87801	1.1188	1.369	1.82400	2.09	1.1182
1.369	1.82400	2.09	0.87824	1.1175	1.370	1.82527	2.10	1.1169
1.370	1.82527	2.10	0.87846	1.1160	1.371	1.82654	2.10	1.1155
1.371	1.82654	2.10	0.87869	1.1148	1.372	1.82781	2.10	1.1145
1.372	1.82781	2.10	0.87892	1.1135	1.373	1.82908	2.10	1.1132
1.373	1.82908	2.10	0.87915	1.1120	1.374	1.83035	2.10	1.1118
1.374	1.83035	2.10	0.87937	1.1108	1.375	1.83162	2.11	1.1105
1.375	1.83162	2.11	0.87960	1.1095	1.376	1.83289	2.11	1.1088
1.376	1.83289	2.11	0.87983	1.1082	1.377	1.83416	2.11	1.1075
1.377	1.83416	2.11	0.88005	1.1070	1.378	1.83543	2.11	1.1062
1.378	1.83543	2.11	0.88028	1.1058	1.379	1.83670	2.11	1.1050
1.379	1.83670	2.11	0.88050	1.1045	1.380	1.83797	2.11	1.1038
1.380	1.83797	2.11	0.88073	1.1035	1.381	1.83924	2.12	1.1025
1.381	1.83924	2.12	0.88095	1.1022	1.382	1.84051	2.12	1.1015
1.382	1.84051	2.12	0.88117	1.1010	1.383	1.84178	2.12	1.1005
1.383	1.84178	2.12	0.88140	1.1000	1.384	1.84305	2.12	1.0995
1.384	1.84305	2.12	0.88162	1.0988	1.385	1.84432	2.13	1.0988
1.385	1.84432	2.13	0.88184	1.0975	1.386	1.84559	2.13	1.0980
1.386	1.84559	2.13	0.88207	1.0965	1.387	1.84686	2.13	1.0975
1.387	1.84686	2.13	0.88229	1.0958	1.388	1.84813	2.13	1.0970
1.388	1.84813	2.13	0.88251	1.0950	1.389	1.84940	2.13	1.0965
1.389	1.84940	2.13	0.88273	1.0945	1.390	1.85067	2.14	1.0960
1.390	1.85067	2.14	0.88295	1.0940	1.391	1.85194	2.14	1.0958
1.391	1.85194	2.14	0.88317	1.0935	1.392	1.85321	2.14	1.0955
1.392	1.85321	2.14	0.88339	1.0930	1.393	1.85448	2.14	1.0952
1.393	1.85448	2.14	0.88361	1.0925	1.394	1.85575	2.15	1.0950
1.394	1.85575	2.15	0.88383	1.0920	1.395	1.85702	2.15	1.0948
1.395	1.85702	2.15	0.88405	1.0915	1.396	1.85829	2.15	1.0945
1.396	1.85829	2.15	0.88427	1.0910	1.397	1.85956	2.15	1.0942
1.397	1.85956	2.15	0.88448	1.0908	1.398	1.86083	2.15	1.0940
1.398	1.86083	2.15	0.88468	1.0905	1.399	1.86210	2.15	1.0938
1.399	1.86210	2.15	0.88487	1.0902	1.400	1.86337	2.15	1.0935
1.400	1.86337	2.15	0.88505	1.0900				
u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.400	1.50430	215	2.15090	199	0.88535	21.6	1.1295	2.8
.401	.06645	215	.15280	191	.88532	21.6	.1291	2.8
.402	.06861	215	.15471	191	.88528	21.5	.1289	2.7
.403	.07076	216	.15662	191	.88500	21.5	.1287	2.7
.404	.07292	216	.15853	191	.88521	21.5	.1284	2.7
1.405	1.07508	216	2.16045	192	0.88513	21.4	1.1281	2.7
.406	.07724	216	.16230	192	.88506	21.4	.1279	2.7
.407	.07940	216	.16418	192	.88486	21.3	.1276	2.7
.408	.08157	217	.16605	192	.88497	21.3	.1273	2.7
.409	.08374	217	.16812	192	.88458	21.3	.1270	2.7
1.410	1.08391	217	2.17005	193	0.88470	21.2	1.1268	2.7
.411	.08608	217	.17198	193	.88471	21.2	.1265	2.7
.412	.08825	217	.17391	193	.88472	21.2	.1262	2.7
.413	.09042	218	.17584	193	.88453	21.1	.1260	2.7
.414	.09260	218	.17777	193	.88451	21.1	.1257	2.7
1.415	1.09598	218	2.17971	194	0.88455	21.0	1.1251	2.7
.416	.09815	218	.18161	194	.88470	21.0	.1252	2.7
.417	.10031	218	.18358	194	.88467	21.0	.1250	2.6
.418	.10248	219	.18553	194	.88468	21.0	.1249	2.6
.419	.10465	219	.18747	195	.88439	21.0	.1244	2.6
1.420	1.04770	219	2.18212	195	0.88460	20.9	1.1243	2.6
.421	.10686	219	.19137	195	.88481	20.8	.1238	2.6
.422	.10903	219	.19332	195	.88402	20.8	.1236	2.6
.423	.11120	220	.19527	195	.88422	20.8	.1233	2.6
.424	.11338	220	.19723	196	.88413	20.7	.1231	2.6
1.425	1.09807	220	2.19418	196	0.88403	20.7	1.1228	2.6
.426	.11557	220	.20114	196	.88464	20.6	.1225	2.6
.427	.11774	220	.20310	197	.88405	20.6	.1221	2.6
.428	.11991	221	.20507	197	.88426	20.6	.1219	2.6
.429	.12209	221	.20704	197	.88446	20.5	.1218	2.6
1.430	1.09970	221	2.20000	197	0.88417	20.5	1.1215	2.6
.431	.12421	221	.21007	197	.88487	20.5	.1212	2.6
.432	.12632	221	.21205	197	.88408	20.4	.1210	2.6
.433	.12843	221	.21402	198	.88428	20.4	.1207	2.6
.434	.13055	222	.21600	198	.88448	20.3	.1205	2.6
1.435	1.09806	222	2.21888	198	0.88459	20.3	1.1202	2.5
.436	.13268	222	.22096	198	.88480	20.3	.1200	2.5
.437	.13481	222	.22285	197	.88409	20.2	.1199	2.5
.438	.13694	222	.22483	199	.88429	20.2	.1195	2.5
.439	.13907	223	.22682	199	.88450	20.2	.1192	2.5
1.440	1.09188	223	2.22881	199	0.88470	20.1	1.1189	2.5
.441	.14111	223	.23080	199	.88490	20.1	.1187	2.5
.442	.14325	223	.23280	200	.88410	20.1	.1184	2.5
.443	.14539	223	.23480	200	.88430	20.0	.1182	2.5
.444	.14752	224	.23680	200	.88450	20.0	.1179	2.5
1.445	2.00305	224	2.23880	200	0.88470	20.0	1.1177	2.5
.446	.00550	224	.24080	201	.88490	19.9	.1173	2.5
.447	.00753	224	.24281	201	.88510	19.9	.1172	2.5
.448	.00958	224	.24482	201	.88530	19.8	.1169	2.5
.449	.01162	225	.24683	201	.88550	19.8	.1167	2.5
1.450	2.01427	225	2.24884	201	0.88560	19.8	1.1165	2.5
u	$\tanh u$	$= F_1'$	$\coth u$	$= F_2'$	$\sinh u$	$= F_3'$	$\cosh u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
1.450	2.01427	2.25	2.26814	201	0.89299	10.25	1.1105	2.5
.451	.01054	2.25	.25681	202	.89281	10.7	.1102	2.5
.452	.01677	2.25	.25481	203	.89263	10.7	.1100	2.5
.453	.02301	2.25	.25280	204	.89245	10.7	.1157	2.4
.454	.02924	2.25	.25082	205	.89228	10.6	.1155	2.4
1.455	2.02544	2.26	2.27891	206	0.89208	10.6	1.1159	2.4
.456	.03278	2.26	.26807	207	.89187	10.6	.1159	2.4
.457	.03901	2.26	.26610	208	.89167	10.5	.1157	2.4
.458	.04523	2.27	.26413	209	.89146	10.5	.1145	2.4
.459	.05146	2.27	.26216	210	.89126	10.5	.1143	2.4
1.460	2.03685	2.27	2.28910	211	0.89105	10.4	1.1140	2.4
.461	.05813	2.27	.27114	212	.89085	10.4	.1138	2.4
.462	.06436	2.27	.27318	213	.89064	10.4	.1135	2.4
.463	.07059	2.28	.27522	214	.89043	10.3	.1133	2.4
.464	.07682	2.28	.27726	215	.89023	10.3	.1131	2.4
1.465	2.04823	2.28	2.29931	216	0.89002	10.2	1.1128	2.4
.466	.08305	2.28	.28136	217	.88981	10.2	.1126	2.4
.467	.08928	2.28	.28341	218	.88960	10.2	.1123	2.4
.468	.09551	2.29	.28547	219	.88939	10.1	.1121	2.4
.469	.10174	2.29	.28752	220	.88919	10.1	.1119	2.4
1.470	2.05965	2.29	2.29958	221	0.88908	10.1	1.1116	2.4
.471	.10797	2.29	.29164	222	.88887	10.0	.1114	2.4
.472	.11420	2.29	.29370	223	.88866	10.0	.1112	2.3
.473	.12043	2.30	.29577	224	.88845	10.0	.1109	2.3
.474	.12666	2.30	.29781	225	.88824	10.0	.1107	2.3
1.475	2.07113	2.30	2.29991	226	0.88803	10.0	1.1105	2.3
.476	.13289	2.30	.30198	227	.88782	10.0	.1102	2.3
.477	.13912	2.30	.30405	228	.88761	10.0	.1100	2.3
.478	.14535	2.31	.30613	229	.88740	10.0	.1098	2.3
.479	.15158	2.31	.30821	230	.88719	10.0	.1095	2.3
1.480	2.08265	2.31	2.31020	231	0.88698	10.0	1.1093	2.3
.481	.15781	2.31	.31234	232	.88677	10.0	.1091	2.3
.482	.16404	2.31	.31447	233	.88656	10.0	.1088	2.3
.483	.17027	2.32	.31661	234	.88635	10.0	.1086	2.3
.484	.17650	2.32	.31874	235	.88614	10.0	.1084	2.3
1.485	2.09423	2.32	2.32073	236	0.88593	10.0	1.1082	2.3
.486	.18273	2.32	.32287	237	.88572	10.0	.1079	2.3
.487	.18896	2.32	.32493	238	.88551	10.0	.1077	2.3
.488	.19519	2.33	.32703	239	.88530	10.0	.1075	2.3
.489	.20142	2.33	.32913	240	.88509	10.0	.1072	2.3
1.490	2.10585	2.33	2.33123	241	0.88488	10.0	1.1070	2.3
.491	.20768	2.33	.33334	242	.88467	10.0	.1068	2.2
.492	.21391	2.33	.33545	243	.88446	10.0	.1066	2.2
.493	.22014	2.34	.33756	244	.88425	10.0	.1063	2.2
.494	.22637	2.34	.33968	245	.88404	10.0	.1061	2.2
1.495	2.11734	2.34	2.34179	246	0.88383	10.0	1.1059	2.2
.496	.23260	2.34	.34191	247	.88362	10.0	.1057	2.2
.497	.23883	2.35	.34403	248	.88341	10.0	.1055	2.2
.498	.24506	2.35	.34616	249	.88320	10.0	.1052	2.2
.499	.25129	2.35	.34828	250	.88299	10.0	.1050	2.2
1.500	2.12928	2.35	2.35241	251	0.88278	10.0	1.1048	2.2
u	tan gd u	= F ₁	sec gd u	= F ₂	sin gd u	= F ₃	cos gd u	= F ₄

Natural Hyperbolic Functions.

u	sinh u	$\cosh u$	$\tanh u$	$\coth u$	$\sinh^{-1} u$	$\cosh^{-1} u$	$\tanh^{-1} u$	$\coth^{-1} u$
1.500	2.12948	2.35141	0.90515	1.10488	2.2	2.2	2.2	2.2
.501	1.5103	1.35154	0.90533	1.1049	2.2	2.2	2.2	2.2
.502	1.5309	1.3567	0.90551	1.1041	2.2	2.2	2.2	2.2
.503	1.5515	1.36181	0.90569	1.1041	2.2	2.2	2.2	2.2
.504	1.5721	1.36695	0.90587	1.1039	2.2	2.2	2.2	2.2
1.505	2.14107	2.36209	0.90605	1.1037	2.2	2.2	2.2	2.2
.506	1.5413	1.36723	0.90623	1.1035	2.2	2.2	2.2	2.2
.507	1.5620	1.37237	0.90641	1.1033	2.2	2.2	2.2	2.2
.508	1.5827	1.37752	0.90658	1.1030	2.2	2.2	2.2	2.2
.509	1.6034	1.38267	0.90676	1.1028	2.2	2.2	2.2	2.2
1.510	2.15391	2.37382	0.90694	1.1026	2.2	2.2	2.2	2.2
.511	1.5539	1.37897	0.90712	1.1024	2.2	2.2	2.2	2.2
.512	1.5746	1.38413	0.90730	1.1022	2.1	2.1	2.1	2.1
.513	1.5954	1.38929	0.90747	1.1020	2.1	2.1	2.1	2.1
.514	1.6162	1.39445	0.90765	1.1018	2.1	2.1	2.1	2.1
1.515	2.16481	2.38461	0.90782	1.1015	2.1	2.1	2.1	2.1
.516	1.6149	1.38978	0.90800	1.1013	2.1	2.1	2.1	2.1
.517	1.6358	1.39495	0.90817	1.1011	2.1	2.1	2.1	2.1
.518	1.6567	1.40012	0.90835	1.1009	2.1	2.1	2.1	2.1
.519	1.6776	1.40529	0.90852	1.1007	2.1	2.1	2.1	2.1
1.520	2.17576	2.39547	0.90870	1.1005	2.1	2.1	2.1	2.1
.521	1.6759	1.40565	0.90887	1.1003	2.1	2.1	2.1	2.1
.522	1.6968	1.41083	0.90905	1.1001	2.1	2.1	2.1	2.1
.523	1.7177	1.41601	0.90922	1.1000	2.1	2.1	2.1	2.1
.524	1.7386	1.42119	0.90939	1.0998	2.1	2.1	2.1	2.1
1.525	2.18876	2.40138	0.90957	1.0994	2.1	2.1	2.1	2.1
.526	1.7389	1.42657	0.90974	1.0992	2.1	2.1	2.1	2.1
.527	1.7598	1.43175	0.90991	1.0990	2.1	2.1	2.1	2.1
.528	1.7807	1.43693	0.91008	1.0988	2.1	2.1	2.1	2.1
.529	1.8016	1.44211	0.91025	1.0986	2.1	2.1	2.1	2.1
1.530	2.20082	2.41236	0.91042	1.0984	2.1	2.1	2.1	2.1
.531	1.8010	1.44755	0.91059	1.0982	2.1	2.1	2.1	2.1
.532	1.8219	1.45273	0.91077	1.0980	2.1	2.1	2.1	2.1
.533	1.8428	1.45792	0.91094	1.0978	2.1	2.1	2.1	2.1
.534	1.8637	1.46311	0.91111	1.0976	2.0	2.0	2.0	2.0
1.535	2.21303	2.42253	0.91128	1.0974	2.0	2.0	2.0	2.0
.536	1.8632	1.46830	0.91145	1.0972	2.0	2.0	2.0	2.0
.537	1.8841	1.47348	0.91162	1.0970	2.0	2.0	2.0	2.0
.538	1.9050	1.47867	0.91179	1.0968	2.0	2.0	2.0	2.0
.539	1.9259	1.48386	0.91195	1.0966	2.0	2.0	2.0	2.0
1.540	2.22510	2.43204	0.91212	1.0964	2.0	2.0	2.0	2.0
.541	1.9255	1.48903	0.91229	1.0962	2.0	2.0	2.0	2.0
.542	1.9464	1.49421	0.91246	1.0960	2.0	2.0	2.0	2.0
.543	1.9673	1.49939	0.91262	1.0958	2.0	2.0	2.0	2.0
.544	1.9882	1.50457	0.91279	1.0956	2.0	2.0	2.0	2.0
1.545	2.23713	2.44054	0.91296	1.0954	2.0	2.0	2.0	2.0
.546	1.9876	1.50972	0.91312	1.0952	2.0	2.0	2.0	2.0
.547	2.0085	1.51490	0.91329	1.0950	2.0	2.0	2.0	2.0
.548	2.0294	1.52008	0.91345	1.0948	2.0	2.0	2.0	2.0
.549	2.0503	1.52526	0.91362	1.0946	2.0	2.0	2.0	2.0
1.550	2.24961	2.45186	0.91379	1.0944	2.0	2.0	2.0	2.0
u	sinh u	$\cosh u$	$\tanh u$	$\coth u$	$\sinh^{-1} u$	$\cosh^{-1} u$	$\tanh^{-1} u$	$\coth^{-1} u$

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
1.550	2.24661	2.46	0.91185	2.25	0.91379	16.5	1.0913	2.0
.551	2.24697	2.46	0.91185	2.25	0.91379	16.5	1.0912	2.0
.552	2.24734	2.47	0.91190	2.25	0.91411	16.4	1.0910	2.0
.553	2.24771	2.47	0.91192	2.26	0.91428	16.4	1.0908	2.0
.554	2.24808	2.47	0.91195	2.26	0.91444	16.4	1.0907	2.0
1.555	2.24845	2.47	0.91197	2.26	0.91461	16.3	1.0904	2.0
.556	2.24882	2.48	0.91200	2.26	0.91477	16.3	1.0902	2.0
.557	2.24919	2.48	0.91202	2.27	0.91493	16.3	1.0900	1.9
.558	2.24956	2.48	0.91204	2.27	0.91510	16.3	1.0898	1.9
.559	2.24993	2.48	0.91206	2.27	0.91526	16.2	1.0896	1.9
1.560	2.25030	2.48	0.91208	2.27	0.91542	16.2	1.0894	1.9
.561	2.25067	2.49	0.91210	2.28	0.91558	16.2	1.0892	1.9
.562	2.25104	2.49	0.91212	2.28	0.91574	16.1	1.0890	1.9
.563	2.25141	2.49	0.91214	2.28	0.91591	16.1	1.0888	1.9
.564	2.25178	2.49	0.91216	2.28	0.91607	16.1	1.0886	1.9
1.565	2.25215	2.50	0.91218	2.29	0.91623	16.1	1.0884	1.9
.566	2.25252	2.50	0.91220	2.29	0.91639	16.0	1.0882	1.9
.567	2.25289	2.50	0.91222	2.29	0.91655	16.0	1.0880	1.9
.568	2.25326	2.51	0.91224	2.29	0.91671	16.0	1.0878	1.9
.569	2.25363	2.51	0.91226	2.30	0.91687	15.9	1.0876	1.9
1.570	2.25400	2.51	0.91228	2.30	0.91703	15.9	1.0874	1.9
.571	2.25437	2.51	0.91230	2.30	0.91719	15.9	1.0872	1.9
.572	2.25474	2.51	0.91232	2.31	0.91734	15.8	1.0870	1.9
.573	2.25511	2.51	0.91234	2.31	0.91750	15.8	1.0868	1.9
.574	2.25548	2.52	0.91236	2.31	0.91766	15.8	1.0866	1.9
1.575	2.25585	2.52	0.91238	2.31	0.91782	15.8	1.0864	1.9
.576	2.25622	2.52	0.91240	2.31	0.91797	15.7	1.0862	1.9
.577	2.25659	2.52	0.91242	2.32	0.91813	15.7	1.0860	1.9
.578	2.25696	2.53	0.91244	2.32	0.91829	15.7	1.0858	1.9
.579	2.25733	2.53	0.91246	2.32	0.91845	15.6	1.0856	1.9
1.580	2.25770	2.53	0.91248	2.32	0.91860	15.6	1.0854	1.9
.581	2.25807	2.53	0.91250	2.33	0.91876	15.6	1.0852	1.9
.582	2.25844	2.54	0.91252	2.33	0.91891	15.6	1.0850	1.9
.583	2.25881	2.54	0.91254	2.33	0.91907	15.5	1.0848	1.9
.584	2.25918	2.54	0.91256	2.33	0.91922	15.5	1.0846	1.9
1.585	2.25955	2.54	0.91258	2.34	0.91938	15.5	1.0844	1.9
.586	2.25992	2.54	0.91260	2.34	0.91953	15.4	1.0842	1.9
.587	2.26029	2.55	0.91262	2.34	0.91969	15.4	1.0840	1.9
.588	2.26066	2.55	0.91264	2.34	0.91984	15.4	1.0838	1.9
.589	2.26103	2.55	0.91266	2.35	0.92000	15.4	1.0836	1.9
1.590	2.26140	2.55	0.91268	2.35	0.92015	15.3	1.0834	1.9
.591	2.26177	2.56	0.91270	2.35	0.92030	15.3	1.0832	1.9
.592	2.26214	2.56	0.91272	2.35	0.92046	15.3	1.0830	1.9
.593	2.26251	2.56	0.91274	2.36	0.92061	15.2	1.0828	1.9
.594	2.26288	2.56	0.91276	2.36	0.92076	15.2	1.0826	1.9
1.595	2.26325	2.57	0.91278	2.36	0.92091	15.2	1.0824	1.9
.596	2.26362	2.57	0.91280	2.37	0.92106	15.2	1.0822	1.9
.597	2.26399	2.57	0.91282	2.37	0.92122	15.1	1.0820	1.9
.598	2.26436	2.57	0.91284	2.37	0.92137	15.1	1.0818	1.9
.599	2.26473	2.58	0.91286	2.37	0.92152	15.1	1.0816	1.9
1.600	2.26510	2.58	0.91288	2.38	0.92167	15.1	1.0814	1.9
u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	u	$\sinh u$	$\cosh u$	$\tanh u$

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
1.600	2.37537	258	2.57746	238	0.92169	15.1	1.0830	1.8
.601	.37815	258	.57881	238	.92182	15.0	.0831	1.8
.602	.38073	258	.58122	238	.92197	15.0	.0830	1.8
.603	.38331	258	.58360	238	.92212	15.0	.0835	1.8
.604	.38590	259	.58599	239	.92227	14.0	.0833	1.8
1.605	2.38849	259	2.58937	239	0.92242	14.0	1.0831	1.8
.606	.39108	259	.59176	239	.92257	14.0	.0830	1.7
.607	.39367	259	.59416	239	.92272	14.0	.0838	1.7
.608	.39626	260	.59655	240	.92286	14.8	.0836	1.7
.609	.39885	260	.59895	240	.92301	14.8	.0834	1.7
1.610	2.40146	260	2.60135	240	0.92316	14.8	1.0832	1.7
.611	.40406	260	.60375	240	.92331	14.8	.0831	1.7
.612	.40667	261	.60616	241	.92346	14.7	.0839	1.7
.613	.40928	261	.60857	241	.92360	14.7	.0837	1.7
.614	.41189	261	.61098	241	.92375	14.7	.0835	1.7
1.615	2.41450	261	2.61139	241	0.92390	14.6	1.0833	1.7
.616	.41711	262	.61381	242	.92404	14.6	.0832	1.7
.617	.41973	262	.61622	242	.92419	14.6	.0840	1.7
.618	.42235	262	.61863	242	.92433	14.6	.0839	1.7
.619	.42497	262	.62107	242	.92448	14.5	.0837	1.7
1.620	2.42760	263	2.62209	243	0.92462	14.5	1.0835	1.7
.621	.42922	263	.62392	243	.92477	14.5	.0834	1.7
.622	.43185	263	.62635	243	.92491	14.5	.0832	1.7
.623	.43448	263	.62879	244	.92506	14.4	.0840	1.7
.624	.43712	264	.63122	244	.92520	14.4	.0838	1.7
1.625	2.44075	264	2.63376	244	0.92535	14.4	1.0837	1.7
.626	.44339	264	.63611	244	.92549	14.3	.0835	1.7
.627	.44603	264	.63855	245	.92563	14.3	.0843	1.7
.628	.44868	264	.64100	245	.92578	14.3	.0842	1.7
.629	.45132	265	.64345	245	.92592	14.3	.0840	1.7
1.630	2.45397	265	2.64599	245	0.92606	14.2	1.0839	1.7
.631	.45663	265	.64836	246	.92620	14.2	.0837	1.7
.632	.45928	265	.65082	246	.92635	14.2	.0845	1.7
.633	.46193	266	.65328	246	.92649	14.2	.0843	1.6
.634	.46459	266	.65574	246	.92663	14.1	.0842	1.6
1.635	2.46725	266	2.65821	247	0.92677	14.1	1.0840	1.6
.636	.46992	266	.66067	247	.92691	14.1	.0839	1.6
.637	.47258	267	.66315	247	.92705	14.1	.0847	1.6
.638	.47525	267	.66562	248	.92719	14.0	.0846	1.6
.639	.47792	267	.66810	248	.92733	14.0	.0844	1.6
1.640	2.48060	267	2.67067	248	0.92747	14.0	1.0842	1.6
.641	.48327	268	.67306	248	.92761	14.0	.0840	1.6
.642	.48595	268	.67554	249	.92775	13.9	.0848	1.6
.643	.48863	268	.67803	249	.92789	13.9	.0847	1.6
.644	.49131	268	.68052	249	.92803	13.9	.0845	1.6
1.645	2.49400	269	2.68301	249	0.92817	13.9	1.0844	1.6
.646	.49669	269	.68551	250	.92831	13.8	.0842	1.6
.647	.49938	269	.68800	250	.92845	13.8	.0850	1.6
.648	.50207	269	.69049	250	.92859	13.8	.0849	1.6
.649	.50477	270	.69299	250	.92872	13.7	.0847	1.6
1.650	2.50746	270	2.69551	251	0.92886	13.7	1.0846	1.6
u	tan pd u	= F ₅ '	sec pd u	= F ₆ '	sin pd u	= F ₇ '	cos pd u	= F ₈ '

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F'	cosh u	= F'	tanh u	= F'	coth u	= F'
1.650	2.50746	270	2.69951	251	0.02885	13.7	1.0766	1.6
.651	.51017	270	.70303	251	.02890	13.7	.0761	1.6
.652	.51287	270	.70451	251	.02913	13.7	.0763	1.6
.653	.51557	271	.70705	252	.02947	13.6	.0761	1.6
.654	.51828	271	.70957	252	.02980	13.6	.0760	1.6
1.655	2.50999	271	2.71209	252	0.03014	13.6	1.0758	1.6
.656	.52371	271	.71461	252	.03038	13.6	.0759	1.6
.657	.52642	272	.71713	253	.03081	13.5	.0755	1.6
.658	.52914	272	.71966	253	.03095	13.5	.0753	1.6
.659	.53186	272	.72219	253	.03008	13.5	.0754	1.6
1.660	2.53459	272	2.72472	253	0.03022	13.5	1.0759	1.6
.661	.53731	273	.72725	254	.03035	13.4	.0749	1.6
.662	.54004	273	.72980	254	.03049	13.4	.0747	1.6
.663	.54277	273	.73234	254	.03062	13.4	.0746	1.6
.664	.54551	273	.73489	255	.03075	13.4	.0744	1.6
1.665	2.54824	274	2.73743	255	0.03089	13.3	1.0742	1.6
.666	.55098	274	.73998	255	.03102	13.3	.0741	1.6
.667	.55372	274	.74253	255	.03115	13.3	.0732	1.6
.668	.55647	275	.74509	259	.03128	13.3	.0738	1.6
.669	.55921	275	.74765	259	.03142	13.2	.0736	1.6
1.670	2.56196	275	2.75021	259	0.03155	13.2	1.0735	1.6
.671	.56471	275	.75277	259	.03168	13.2	.0733	1.6
.672	.56747	276	.75534	257	.03182	13.2	.0732	1.6
.673	.57022	276	.75791	257	.03195	13.1	.0730	1.6
.674	.57298	276	.76048	257	.03208	13.1	.0729	1.6
1.675	2.57574	276	2.76305	258	0.03221	13.1	1.0727	1.6
.676	.57851	277	.76563	258	.03234	13.1	.0726	1.6
.677	.58127	277	.76821	258	.03247	13.0	.0724	1.6
.678	.58404	277	.77079	258	.03260	13.0	.0723	1.6
.679	.58682	277	.77338	259	.03273	13.0	.0721	1.6
1.680	2.58959	278	2.77596	259	0.03286	13.0	1.0720	1.6
.681	.59237	278	.77856	259	.03299	13.0	.0718	1.6
.682	.59515	278	.78115	260	.03312	12.9	.0717	1.6
.683	.59793	278	.78375	259	.03325	12.9	.0715	1.6
.684	.60072	279	.78635	260	.03338	12.9	.0714	1.6
1.685	2.60350	279	2.78895	260	0.03351	12.9	1.0712	1.6
.686	.60629	279	.79155	261	.03364	12.8	.0711	1.6
.687	.60909	279	.79416	261	.03377	12.8	.0709	1.6
.688	.61188	280	.79677	261	.03390	12.8	.0708	1.6
.689	.61468	280	.79938	261	.03402	12.8	.0706	1.6
1.690	2.61748	280	2.80200	262	0.03415	12.7	1.0705	1.6
.691	.62028	280	.80462	262	.03427	12.7	.0703	1.6
.692	.62309	281	.80724	262	.03440	12.7	.0702	1.6
.693	.62590	281	.80987	263	.03453	12.7	.0701	1.6
.694	.62871	281	.81249	263	.03465	12.6	.0699	1.6
1.695	2.63152	282	2.81512	263	0.03478	12.6	1.0698	1.6
.696	.63434	282	.81776	263	.03491	12.6	.0696	1.6
.697	.63716	282	.82040	264	.03503	12.6	.0695	1.6
.698	.63998	282	.82303	264	.03516	12.5	.0693	1.6
.699	.64280	283	.82567	264	.03528	12.5	.0692	1.6
1.700	2.64563	283	2.82832	265	0.03541	12.5	1.0691	1.6
u	tanh u	= F'	coth u	= F'	sinh u	= F'	coth u	= F'

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
1.700	2.61255	283	2.83812	295	0.91541	1.25	1.0691	1.4
1.701	2.61410	284	2.83965	295	0.91553	1.25	1.0693	1.4
1.702	2.61565	284	2.84118	295	0.91565	1.25	1.0695	1.4
1.703	2.61720	284	2.84272	295	0.91578	1.25	1.0697	1.4
1.704	2.61875	284	2.84425	295	0.91591	1.25	1.0699	1.4
1.705	2.62030	284	2.84578	295	0.91603	1.25	1.0701	1.4
1.706	2.62185	284	2.84731	295	0.91615	1.25	1.0703	1.4
1.707	2.62340	285	2.84885	297	0.91628	1.25	1.0705	1.4
1.708	2.62495	285	2.85038	297	0.91640	1.25	1.0707	1.4
1.709	2.62650	285	2.85191	297	0.91652	1.25	1.0709	1.4
1.710	2.62805	285	2.85344	297	0.91665	1.25	1.0711	1.4
1.711	2.62960	285	2.85497	298	0.91677	1.25	1.0713	1.4
1.712	2.63115	285	2.85650	298	0.91689	1.25	1.0715	1.4
1.713	2.63270	285	2.85803	298	0.91701	1.25	1.0717	1.4
1.714	2.63425	287	2.85956	299	0.91714	1.25	1.0719	1.4
1.715	2.63580	287	2.86109	299	0.91726	1.25	1.0721	1.4
1.716	2.63735	287	2.86262	299	0.91738	1.25	1.0723	1.4
1.717	2.63890	287	2.86415	299	0.91750	1.25	1.0725	1.4
1.718	2.64045	288	2.86568	299	0.91762	1.25	1.0727	1.4
1.719	2.64200	288	2.86721	299	0.91774	1.25	1.0729	1.4
1.720	2.64355	288	2.86874	299	0.91786	1.25	1.0731	1.4
1.721	2.64510	288	2.87027	299	0.91798	1.25	1.0733	1.4
1.722	2.64665	289	2.87180	299	0.91810	1.25	1.0735	1.4
1.723	2.64820	289	2.87333	299	0.91822	1.25	1.0737	1.4
1.724	2.64975	289	2.87486	299	0.91834	1.25	1.0739	1.4
1.725	2.65130	289	2.87639	299	0.91846	1.25	1.0741	1.4
1.726	2.65285	289	2.87792	299	0.91858	1.25	1.0743	1.4
1.727	2.65440	289	2.87945	299	0.91870	1.25	1.0745	1.4
1.728	2.65595	289	2.88098	299	0.91882	1.25	1.0747	1.4
1.729	2.65750	291	2.88251	299	0.91894	1.25	1.0749	1.4
1.730	2.65905	291	2.88404	299	0.91906	1.25	1.0751	1.4
1.731	2.66060	291	2.88557	299	0.91918	1.25	1.0753	1.4
1.732	2.66215	291	2.88710	299	0.91930	1.25	1.0755	1.4
1.733	2.66370	291	2.88863	299	0.91942	1.25	1.0757	1.4
1.734	2.66525	291	2.89016	299	0.91954	1.25	1.0759	1.4
1.735	2.66680	292	2.89169	299	0.91966	1.25	1.0761	1.4
1.736	2.66835	292	2.89322	299	0.91978	1.25	1.0763	1.4
1.737	2.66990	292	2.89475	299	0.91990	1.25	1.0765	1.4
1.738	2.67145	292	2.89628	299	0.92002	1.25	1.0767	1.4
1.739	2.67300	292	2.89781	299	0.92014	1.25	1.0769	1.4
1.740	2.67455	292	2.89934	299	0.92026	1.25	1.0771	1.4
1.741	2.67610	292	2.90087	299	0.92038	1.25	1.0773	1.4
1.742	2.67765	292	2.90240	299	0.92050	1.25	1.0775	1.4
1.743	2.67920	292	2.90393	299	0.92062	1.25	1.0777	1.4
1.744	2.68075	292	2.90546	299	0.92074	1.25	1.0779	1.4
1.745	2.68230	292	2.90699	299	0.92086	1.25	1.0781	1.4
1.746	2.68385	292	2.90852	299	0.92098	1.25	1.0783	1.4
1.747	2.68540	292	2.91005	299	0.92110	1.25	1.0785	1.4
1.748	2.68695	292	2.91158	299	0.92122	1.25	1.0787	1.4
1.749	2.68850	292	2.91311	299	0.92134	1.25	1.0789	1.4
1.750	2.69005	292	2.91464	299	0.92146	1.25	1.0791	1.4
1.751	2.69160	292	2.91617	299	0.92158	1.25	1.0793	1.4
1.752	2.69315	292	2.91770	299	0.92170	1.25	1.0795	1.4
1.753	2.69470	292	2.91923	299	0.92182	1.25	1.0797	1.4
1.754	2.69625	292	2.92076	299	0.92194	1.25	1.0799	1.4
1.755	2.69780	292	2.92229	299	0.92206	1.25	1.0801	1.4
1.756	2.69935	292	2.92382	299	0.92218	1.25	1.0803	1.4
1.757	2.70090	292	2.92535	299	0.92230	1.25	1.0805	1.4
1.758	2.70245	292	2.92688	299	0.92242	1.25	1.0807	1.4
1.759	2.70400	292	2.92841	299	0.92254	1.25	1.0809	1.4
1.760	2.70555	292	2.92994	299	0.92266	1.25	1.0811	1.4
1.761	2.70710	292	2.93147	299	0.92278	1.25	1.0813	1.4
1.762	2.70865	292	2.93300	299	0.92290	1.25	1.0815	1.4
1.763	2.71020	292	2.93453	299	0.92302	1.25	1.0817	1.4
1.764	2.71175	292	2.93606	299	0.92314	1.25	1.0819	1.4
1.765	2.71330	292	2.93759	299	0.92326	1.25	1.0821	1.4
1.766	2.71485	292	2.93912	299	0.92338	1.25	1.0823	1.4
1.767	2.71640	292	2.94065	299	0.92350	1.25	1.0825	1.4
1.768	2.71795	292	2.94218	299	0.92362	1.25	1.0827	1.4
1.769	2.71950	292	2.94371	299	0.92374	1.25	1.0829	1.4
1.770	2.72105	292	2.94524	299	0.92386	1.25	1.0831	1.4
1.771	2.72260	292	2.94677	299	0.92398	1.25	1.0833	1.4
1.772	2.72415	292	2.94830	299	0.92410	1.25	1.0835	1.4
1.773	2.72570	292	2.94983	299	0.92422	1.25	1.0837	1.4
1.774	2.72725	292	2.95136	299	0.92434	1.25	1.0839	1.4
1.775	2.72880	292	2.95289	299	0.92446	1.25	1.0841	1.4
1.776	2.73035	292	2.95442	299	0.92458	1.25	1.0843	1.4
1.777	2.73190	292	2.95595	299	0.92470	1.25	1.0845	1.4
1.778	2.73345	292	2.95748	299	0.92482	1.25	1.0847	1.4
1.779	2.73500	292	2.95901	299	0.92494	1.25	1.0849	1.4
1.780	2.73655	292	2.96054	299	0.92506	1.25	1.0851	1.4
1.781	2.73810	292	2.96207	299	0.92518	1.25	1.0853	1.4
1.782	2.73965	292	2.96360	299	0.92530	1.25	1.0855	1.4
1.783	2.74120	292	2.96513	299	0.92542	1.25	1.0857	1.4
1.784	2.74275	292	2.96666	299	0.92554	1.25	1.0859	1.4
1.785	2.74430	292	2.96819	299	0.92566	1.25	1.0861	1.4
1.786	2.74585	292	2.96972	299	0.92578	1.25	1.0863	1.4
1.787	2.74740	292	2.97125	299	0.92590	1.25	1.0865	1.4
1.788	2.74895	292	2.97278	299	0.92602	1.25	1.0867	1.4
1.789	2.75050	292	2.97431	299	0.92614	1.25	1.0869	1.4
1.790	2.75205	292	2.97584	299	0.92626	1.25	1.0871	1.4
1.791	2.75360	292	2.97737	299	0.92638	1.25	1.0873	1.4
1.792	2.75515	292	2.97890	299	0.92650	1.25	1.0875	1.4
1.793	2.75670	292	2.98043	299	0.92662	1.25	1.0877	1.4
1.794	2.75825	292	2.98196	299	0.92674	1.25	1.0879	1.4
1.795	2.75980	292	2.98349	299	0.92686	1.25	1.0881	1.4
1.796	2.76135	292	2.98502	299	0.92698	1.25	1.0883	1.4
1.797	2.76290	292	2.98655	299	0.92710	1.25	1.0885	1.4
1.798	2.76445	292	2.98808	299	0.92722	1.25	1.0887	1.4
1.799	2.76600	292	2.98961	299	0.92734	1.25	1.0889	1.4
1.800	2.76755	292	2.99114	299	0.92746	1.25	1.0891	1.4

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
1.750	2.70841	297	2.45319	279	0.93188	11.4	1.0653	1.3
.751	2.71349	297	2.45828	279	0.93189	11.4	1.0651	1.3
.752	2.71857	297	2.46336	280	0.93190	11.4	1.0649	1.3
.753	2.72365	297	2.46844	280	0.93191	11.4	1.0647	1.3
.754	2.72873	298	2.47352	280	0.93192	11.4	1.0645	1.3
1.755	2.73381	298	2.47860	281	0.93193	11.4	1.0643	1.3
.756	2.73889	298	2.48368	281	0.93194	11.4	1.0641	1.3
.757	2.74397	298	2.48876	281	0.93195	11.4	1.0639	1.3
.758	2.74905	299	2.49384	281	0.93196	11.4	1.0637	1.3
.759	2.75413	299	2.49892	282	0.93197	11.4	1.0635	1.3
1.760	2.75921	299	2.50400	282	0.93198	11.4	1.0633	1.3
.761	2.76429	300	2.50908	282	0.93199	11.4	1.0631	1.3
.762	2.76937	300	2.51416	283	0.93200	11.4	1.0629	1.3
.763	2.77445	300	2.51924	283	0.93201	11.4	1.0627	1.3
.764	2.77953	300	2.52432	283	0.93202	11.4	1.0625	1.3
1.765	2.78461	301	2.52940	283	0.93203	11.4	1.0623	1.3
.766	2.78969	301	2.53448	284	0.93204	11.4	1.0621	1.3
.767	2.79477	301	2.53956	284	0.93205	11.4	1.0619	1.3
.768	2.79985	301	2.54464	284	0.93206	11.4	1.0617	1.3
.769	2.80493	302	2.54972	285	0.93207	11.4	1.0615	1.3
1.770	2.81001	302	2.55480	285	0.93208	11.4	1.0613	1.3
.771	2.81509	302	2.55988	285	0.93209	11.4	1.0611	1.3
.772	2.82017	303	2.56496	285	0.93210	11.4	1.0609	1.3
.773	2.82525	303	2.57004	285	0.93211	11.4	1.0607	1.3
.774	2.83033	303	2.57512	285	0.93212	11.4	1.0605	1.3
1.775	2.83541	303	2.58020	285	0.93213	11.4	1.0603	1.3
.776	2.84049	304	2.58528	286	0.93214	11.4	1.0601	1.3
.777	2.84557	304	2.59036	286	0.93215	11.4	1.0599	1.3
.778	2.85065	304	2.59544	286	0.93216	11.4	1.0597	1.3
.779	2.85573	305	2.60052	286	0.93217	11.4	1.0595	1.3
1.780	2.86081	305	2.60560	286	0.93218	11.4	1.0593	1.3
.781	2.86589	305	2.61068	287	0.93219	11.4	1.0591	1.3
.782	2.87097	305	2.61576	287	0.93220	11.4	1.0589	1.3
.783	2.87605	306	2.62084	287	0.93221	11.4	1.0587	1.3
.784	2.88113	306	2.62592	287	0.93222	11.4	1.0585	1.3
1.785	2.88621	306	2.63100	288	0.93223	11.4	1.0583	1.3
.786	2.89129	307	2.63608	288	0.93224	11.4	1.0581	1.3
.787	2.89637	307	2.64116	288	0.93225	11.4	1.0579	1.3
.788	2.90145	307	2.64624	288	0.93226	11.4	1.0577	1.3
.789	2.90653	308	2.65132	288	0.93227	11.4	1.0575	1.3
1.790	2.91161	308	2.65640	289	0.93228	11.4	1.0573	1.3
.791	2.91669	308	2.66148	289	0.93229	11.4	1.0571	1.3
.792	2.92177	309	2.66656	289	0.93230	11.4	1.0569	1.3
.793	2.92685	309	2.67164	289	0.93231	11.4	1.0567	1.3
.794	2.93193	309	2.67672	290	0.93232	11.4	1.0565	1.3
1.795	2.93701	310	2.68180	290	0.93233	11.4	1.0563	1.3
.796	2.94209	310	2.68688	290	0.93234	11.4	1.0561	1.3
.797	2.94717	310	2.69196	291	0.93235	11.4	1.0559	1.3
.798	2.95225	310	2.69704	291	0.93236	11.4	1.0557	1.3
.799	2.95733	311	2.70212	291	0.93237	11.4	1.0555	1.3
1.800	2.96241	311	2.70720	292	0.93238	11.4	1.0553	1.3
x	$\tanh x$	$= F_1'$	$\coth x$	$= F_2'$	$\sinh x$	$= F_3'$	$\cosh x$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.800	2.95217	311	3.169717	301	0.931681	10.4	1.06951	1.2
.801	.91523	311	1.16042	305	.941901	10.3	.0594	1.2
.802	.91810	311	1.16336	305	.94201	10.3	.05900	1.2
.803	.92151	312	1.16631	305	.94212	10.3	.05858	1.1
.804	.92493	312	1.16927	305	.94222	10.3	.05817	1.1
1.805	2.95775	312	3.17222	305	0.94232	10.4	1.06935	1.1
.806	.92867	313	1.17218	309	.94242	10.2	.05805	1.1
.807	.93200	313	1.17514	309	.94253	10.2	.05794	1.1
.808	.93573	313	1.17811	307	.94263	10.2	.05783	1.1
.809	.93926	313	1.18108	307	.94273	10.2	.05772	1.1
1.810	2.97339	314	3.17705	307	0.94283	10.2	1.06950	1.1
.811	.94354	314	1.18403	308	.94293	10.1	.05761	1.1
.812	.94688	314	1.18700	308	.94304	10.1	.05750	1.1
.813	.95028	315	1.19000	308	.94314	10.1	.05737	1.1
.814	.95367	315	1.19307	309	.94324	10.1	.05726	1.1
1.815	2.98913	315	3.18596	309	0.94334	10.1	1.06951	1.1
.816	.95727	315	1.19605	309	.94344	10.0	.05714	1.1
.817	.96063	316	1.19911	309	.94354	10.0	.05703	1.1
.818	.96400	316	1.20214	309	.94364	10.0	.05691	1.1
.819	3.00175	316	1.20519	309	.94374	10.0	.05680	1.1
1.820	3.00312	317	3.19903	309	0.94384	10.0	1.06950	1.1
.821	.96868	317	1.20805	301	.94394	10.0	.05668	1.1
.822	.97126	317	1.21100	301	.94404	9.9	.05657	1.1
.823	.97413	318	1.21407	301	.94414	9.9	.05646	1.1
.824	.97701	318	1.21709	302	.94424	9.9	.05635	1.1
1.825	3.02070	318	3.19201	302	0.94434	9.9	1.06951	1.1
.826	.98067	319	1.22003	302	.94444	9.9	.05623	1.1
.827	.98366	319	1.22305	303	.94454	9.8	.05612	1.1
.828	.98665	319	1.22608	303	.94464	9.8	.05601	1.1
.829	.98964	319	1.22911	303	.94474	9.8	.05590	1.1
1.830	3.03794	320	3.19715	304	0.94484	9.8	1.06950	1.1
.831	.99293	320	1.23219	304	.94494	9.8	.05578	1.1
.832	.99592	320	1.23521	304	.94504	9.7	.05567	1.1
.833	.99891	321	1.23827	305	.94514	9.7	.05555	1.1
.834	1.00190	321	1.24131	305	.94524	9.7	.05544	1.1
1.835	3.05276	321	3.21237	305	0.94534	9.7	1.06951	1.1
.836	1.00489	322	1.24433	305	.94544	9.7	.05532	1.1
.837	1.00788	322	1.24739	305	.94554	9.7	.05521	1.1
.838	1.01087	322	1.25045	305	.94564	9.6	.05510	1.1
.839	1.01386	322	1.25351	307	.94574	9.6	.05499	1.1
1.840	3.06985	323	3.22708	307	0.94584	9.6	1.06948	1.1
.841	1.01689	323	1.25655	307	.94594	9.6	.05487	1.1
.842	1.01992	323	1.25962	308	.94604	9.6	.05476	1.1
.843	1.02295	324	1.26269	308	.94614	9.5	.05464	1.1
.844	1.02598	324	1.26578	308	.94624	9.5	.05453	1.1
1.845	3.08363	324	3.24206	309	0.94634	9.5	1.06942	1.1
.846	1.02898	325	1.26885	309	.94644	9.5	.05441	1.0
.847	1.03197	325	1.27191	309	.94654	9.5	.05430	1.0
.848	1.03496	325	1.27500	309	.94664	9.5	.05419	1.0
.849	1.03795	326	1.27809	310	.94674	9.4	.05408	1.0
1.850	3.10120	326	3.25353	310	0.94684	9.4	1.06947	1.0
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.850	3.10149	3.26	3.25953	310	0.95175	9.4	1.0507	1.0
.851	.40355	3.26	.26043	310	.95181	9.4	.0501	1.0
.852	.40781	3.26	.26174	311	.95193	9.4	.0505	1.0
.853	.41208	3.27	.26295	311	.95203	9.4	.0509	1.0
.854	.41635	3.27	.26406	311	.95212	9.4	.0513	1.0
1.855	3.11762	3.27	3.27108	312	0.95221	9.4	1.0512	1.0
.856	.42188	3.28	.26519	312	.95231	9.4	.0516	1.0
.857	.42615	3.28	.26632	312	.95240	9.4	.0520	1.0
.858	.43042	3.28	.26744	313	.95249	9.4	.0523	1.0
.859	.43469	3.29	.26857	313	.95259	9.4	.0528	1.0
1.860	3.13393	3.29	3.28970	313	0.95268	9.4	1.0527	1.0
.861	.43894	3.29	.26981	314	.95277	9.4	.0531	1.0
.862	.44321	3.29	.27093	314	.95286	9.4	.0535	1.0
.863	.44748	3.29	.27205	314	.95295	9.4	.0539	1.0
.864	.45175	3.29	.27317	315	.95305	9.4	.0543	1.0
1.865	3.15052	3.31	3.30542	315	0.95314	9.4	1.0532	1.0
.866	.45602	3.31	.27428	315	.95323	9.4	.0546	1.0
.867	.46029	3.31	.27540	316	.95332	9.4	.0550	1.0
.868	.46456	3.31	.27652	316	.95341	9.4	.0554	1.0
.869	.46883	3.32	.27764	316	.95350	9.4	.0558	1.0
1.870	3.16909	3.32	3.32121	317	0.95359	9.4	1.0541	1.0
.871	.47336	3.32	.27875	317	.95368	9.4	.0561	1.0
.872	.47763	3.33	.27987	317	.95378	9.4	.0565	1.0
.873	.48190	3.33	.28099	318	.95387	9.4	.0569	1.0
.874	.48617	3.33	.28211	318	.95396	9.4	.0573	1.0
1.875	3.18771	3.34	3.33709	318	0.95405	9.4	1.0548	1.0
.876	.49044	3.34	.28323	319	.95414	9.4	.0581	1.0
.877	.49471	3.34	.28435	319	.95423	9.4	.0585	1.0
.878	.49898	3.35	.28547	319	.95432	9.4	.0589	1.0
.879	.50325	3.35	.28659	320	.95441	9.4	.0593	1.0
1.880	3.20606	3.35	3.35305	320	0.95449	9.4	1.0555	1.0
.881	.50733	3.35	.28771	320	.95458	9.4	.0597	1.0
.882	.51160	3.35	.28883	321	.95467	9.4	.0601	1.0
.883	.51587	3.35	.28995	321	.95476	9.4	.0605	1.0
.884	.52014	3.37	.29107	321	.95485	9.4	.0609	1.0
1.885	3.22726	3.37	3.36909	322	0.95493	9.4	1.0567	1.0
.886	.52453	3.37	.29219	322	.95502	9.4	.0611	1.0
.887	.52880	3.38	.29331	322	.95511	9.4	.0615	1.0
.888	.53307	3.38	.29443	323	.95520	9.4	.0619	1.0
.889	.53734	3.38	.29555	323	.95529	9.4	.0623	1.0
1.890	3.24415	3.39	3.38523	323	0.95537	9.4	1.0579	1.0
.891	.54142	3.39	.29667	324	.95546	9.4	.0627	1.0
.892	.54569	3.39	.29779	324	.95555	9.4	.0631	1.0
.893	.54996	3.39	.29891	324	.95564	9.4	.0635	1.0
.894	.55423	3.40	.29993	325	.95572	9.4	.0639	1.0
1.895	3.26112	3.40	3.40143	325	0.95581	9.4	1.0591	1.0
.896	.55849	3.40	.30105	325	.95590	9.4	.0643	1.0
.897	.56276	3.41	.30217	326	.95598	9.4	.0647	1.0
.898	.56703	3.41	.30329	326	.95607	9.4	.0651	1.0
.899	.57130	3.41	.30441	326	.95615	9.4	.0655	1.0
1.900	3.27816	3.42	3.41773	327	0.95624	9.4	1.0603	1.0
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$
1.000	3.46816	342	3.41773	327	0.00000	8.0	1.0138	0.0
.001	.27158	342	.41000	327	.00000	8.5	.0137	0.0
.002	.47900	342	.42127	328	.00001	8.5	.0137	0.0
.003	.68113	343	.42755	328	.00001	8.5	.0137	0.0
.004	.88186	343	.43083	328	.00001	8.5	.0137	0.0
1.005	3.48520	343	3.44172	329	0.00001	8.5	1.0138	0.0
.006	.08873	344	.43790	329	.00002	8.5	.0137	0.0
.007	.28017	344	.44019	329	.00002	8.5	.0137	0.0
.008	.48000	344	.44349	329	.00002	8.5	.0137	0.0
.009	.68000	345	.44748	329	.00002	8.5	.0137	0.0
1.010	3.49000	345	3.45098	330	0.00002	8.5	1.0138	0.0
.011	.08926	345	.45389	331	.00002	8.5	.0137	0.0
.012	.29013	346	.45720	331	.00002	8.5	.0137	0.0
.013	.49187	346	.46051	331	.00002	8.5	.0137	0.0
.014	.69333	346	.46382	332	.00002	8.5	.0137	0.0
1.015	3.49800	347	3.45711	332	0.00002	8.5	1.0138	0.0
.016	.29427	347	.46700	332	.00002	8.5	.0137	0.0
.017	.49573	347	.47030	333	.00002	8.5	.0137	0.0
.018	.69721	348	.47362	333	.00002	8.5	.0137	0.0
.019	.89869	348	.47695	333	.00002	8.5	.0137	0.0
1.020	3.50718	348	3.46038	334	0.00002	8.5	1.0138	0.0
.021	.30066	349	.48012	334	.00002	8.5	.0137	0.0
.022	.50215	349	.48346	334	.00002	8.5	.0137	0.0
.023	.70364	349	.48681	335	.00002	8.5	.0137	0.0
.024	.90514	350	.49016	335	.00002	8.5	.0137	0.0
1.025	3.51561	350	3.46361	335	0.00002	8.5	1.0138	0.0
.026	.30664	350	.49347	336	.00002	8.5	.0137	0.0
.027	.50813	351	.49683	336	.00002	8.5	.0137	0.0
.028	.70962	351	.50019	337	.00002	8.5	.0137	0.0
.029	.91112	351	.50356	337	.00002	8.5	.0137	0.0
1.030	3.52418	352	3.46693	337	0.00002	8.5	1.0138	0.0
.031	.30760	352	.50687	338	.00002	8.5	.0137	0.0
.032	.50909	352	.51020	338	.00002	8.5	.0137	0.0
.033	.71058	353	.51354	338	.00002	8.5	.0137	0.0
.034	.91208	353	.51688	339	.00002	8.5	.0137	0.0
1.035	3.53261	353	3.47023	339	0.00002	8.5	1.0138	0.0
.036	.30909	354	.52019	339	.00002	8.5	.0137	0.0
.037	.51058	354	.52354	339	.00002	8.5	.0137	0.0
.038	.71208	355	.52689	340	.00002	8.5	.0137	0.0
.039	.91357	355	.53024	340	.00002	8.5	.0137	0.0
1.040	3.54052	355	3.47353	341	0.00002	8.5	1.0138	0.0
.041	.31058	355	.53359	341	.00002	8.5	.0137	0.0
.042	.51208	356	.53694	341	.00002	8.5	.0137	0.0
.043	.71357	356	.54029	342	.00002	8.5	.0137	0.0
.044	.91507	356	.54364	342	.00002	8.5	.0137	0.0
1.045	3.54852	357	3.47683	343	0.00002	8.5	1.0138	0.0
.046	.31208	357	.54699	343	.00002	8.5	.0137	0.0
.047	.51357	358	.55034	343	.00002	8.5	.0137	0.0
.048	.71507	358	.55369	344	.00002	8.5	.0137	0.0
.049	.91657	358	.55704	344	.00002	8.5	.0137	0.0
1.050	3.55652	359	3.48013	344	0.00002	8.5	1.0138	0.0
1.050	3.46321	359	3.58318	344	0.00002	7.8	1.0132	0.8
x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$

SMITHSONIAN TABLE

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
1.030	3.44321	359	3.58548	344	0.96032	7.8	1.0413	0.8
.051	4.4979	359	5.8831	345	.96030	7.8	.0412	
.052	4.49948	359	5.9237	345	.96037	7.7	.0412	
.053	4.50088	360	5.9641	345	.96055	7.7	.0411	
.054	4.50228	360	6.0048	346	.96063	7.7	.0410	
1.055	3.46118	360	3.60274	346	0.96071	7.7	1.0409	0.8
.056	3.46298	361	3.60520	346	.96078	7.7	.0408	
.057	3.46439	361	3.60767	347	.96086	7.7	.0407	
.058	3.46580	361	3.61014	347	.96094	7.7	.0407	
.059	3.46722	362	3.61262	348	.96101	7.6	.0406	
1.060	3.47023	362	3.62080	348	0.96109	7.6	1.0406	0.8
.061	3.47286	362	3.62357	348	.96117	7.6	.0405	
.062	3.47548	363	3.62706	349	.96124	7.6	.0405	
.063	3.47811	363	3.63055	349	.96132	7.6	.0404	
.064	3.48074	363	3.63404	349	.96139	7.6	.0404	
1.065	3.48338	364	3.63753	350	0.96147	7.6	1.0404	0.8
.066	3.48602	364	3.64103	350	.96155	7.5	.0403	
.067	3.48866	364	3.64454	350	.96162	7.5	.0403	
.068	3.49131	365	3.64804	351	.96170	7.5	.0402	
.069	3.49395	365	3.65155	351	.96177	7.5	.0402	
1.070	3.49661	366	3.65507	352	0.96185	7.5	1.0402	0.8
.071	3.49927	366	3.65858	352	.96192	7.5	.0401	
.072	3.50193	366	3.66211	352	.96199	7.5	.0401	
.073	3.50459	367	3.66563	353	.96207	7.4	.0401	
.074	3.50726	367	3.66916	353	.96214	7.4	.0400	
1.075	3.51003	367	3.67269	353	0.96222	7.4	1.0400	0.8
.076	3.51270	368	3.67623	354	.96229	7.4	.0399	
.077	3.51538	368	3.67977	354	.96237	7.4	.0399	
.078	3.51805	368	3.68331	354	.96244	7.4	.0399	
.079	3.52073	369	3.68686	355	.96251	7.4	.0398	
1.080	3.52341	369	3.69041	355	0.96259	7.3	1.0398	0.8
.081	3.52603	369	3.69397	356	.96266	7.3	.0398	
.082	3.52872	370	3.69752	356	.96273	7.3	.0397	
.083	3.53142	370	3.70108	356	.96281	7.3	.0397	
.084	3.53413	370	3.70465	357	.96288	7.3	.0396	
1.085	3.53683	371	3.70821	357	0.96296	7.3	1.0396	0.8
.086	3.53953	371	3.71179	357	.96302	7.3	.0396	
.087	3.54226	372	3.71536	358	.96310	7.2	.0395	
.088	3.54497	372	3.71894	358	.96317	7.2	.0395	
.089	3.54769	372	3.72253	359	.96324	7.2	.0395	
1.090	3.55039	373	3.72611	359	0.96331	7.2	1.0395	0.8
.091	3.55315	373	3.72971	359	.96339	7.2	.0395	
.092	3.55588	373	3.73330	360	.96346	7.2	.0395	
.093	3.55861	374	3.73690	360	.96353	7.2	.0395	
.094	3.56135	374	3.74050	360	.96360	7.1	.0395	
1.095	3.56409	374	3.74411	361	0.96367	7.1	1.0397	0.8
.096	3.56684	375	3.74772	361	.96374	7.1	.0396	
.097	3.56959	375	3.75133	362	.96382	7.1	.0395	
.098	3.57234	375	3.75495	362	.96389	7.1	.0395	
.099	3.57510	376	3.75857	362	.96396	7.1	.0394	
2.000	3.65986	376	3.76220	363	0.96403	7.1	1.0393	0.8
u	$\tanh u$	$= F_1'$	$\coth u$	$= F_2'$	$\sinh u$	$= F_3'$	$\cosh u$	$= F_4'$

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
2.000	3.62686	376	3.76220	381	0.97303	7.1	1.0273	0.8
.001	.001652	377	.76182	384	.97310	7.1	.0172	
.002	.003309	377	.76246	385	.97317	7.0	.0172	
.003	.004961	377	.76309	384	.97324	7.0	.0171	
.004	.006614	378	.76373	384	.97331	7.0	.0170	
2.005	3.64572	378	3.78028	385	0.97438	7.0	1.0389	0.8
.005	.008270	378	.76392	385	.97445	7.0	.0170	0.8
.007	.013141	379	.76508	385	.97452	7.0	.0169	0.7
.008	.016797	379	.76571	386	.97459	7.0	.0169	
.009	.020453	379	.76635	386	.97466	6.9	.0168	
2.010	3.66461	380	3.79885	386	0.97573	6.9	1.0496	0.7
.011	.024116	380	.76692	387	.97580	6.9	.0168	
.012	.027727	381	.76755	387	.97587	6.9	.0167	
.013	.031338	381	.76819	388	.97594	6.9	.0167	
.014	.034949	381	.76882	388	.97600	6.9	.0166	
2.015	3.68350	382	3.81702	388	0.97607	6.9	1.0602	0.7
.016	.038552	382	.76947	389	.97614	6.9	.0166	
.017	.042153	382	.77010	389	.97621	6.8	.0165	
.018	.045757	383	.77073	370	.97628	6.8	.0164	
.019	.049360	383	.77137	370	.97635	6.8	.0163	
2.020	3.70243	384	3.83540	380	0.97641	6.8	1.0708	0.7
.021	.052967	384	.77200	371	.97648	6.8	.0163	
.022	.056571	384	.77263	371	.97655	6.8	.0162	
.023	.060175	385	.77326	371	.97662	6.8	.0161	
.024	.063779	385	.77389	372	.97669	6.7	.0160	
2.025	3.72145	385	3.85405	372	0.97675	6.7	1.0815	0.7
.026	.067381	385	.77452	373	.97682	6.7	.0159	
.027	.070982	386	.77515	373	.97689	6.7	.0158	
.028	.074584	387	.77578	373	.97696	6.7	.0157	
.029	.078185	387	.77641	374	.97702	6.7	.0156	
2.030	3.74048	387	3.87271	374	0.97709	6.7	1.0921	0.7
.031	.081788	388	.77704	375	.97716	6.7	.0155	
.032	.085389	388	.77767	375	.97722	6.6	.0154	
.033	.088990	388	.77830	375	.97729	6.6	.0153	
.034	.092591	389	.77893	376	.97735	6.6	.0152	
2.035	3.75950	389	3.89147	376	0.97742	6.6	1.1027	0.7
.035	.096192	390	.77956	376	.97749	6.6	.0151	
.037	.100000	390	.78019	377	.97755	6.6	.0150	
.038	.103808	390	.78082	377	.97762	6.6	.0149	
.039	.107616	391	.78145	378	.97768	6.6	.0148	
2.040	3.77852	391	3.91032	378	0.97775	6.5	1.1131	0.7
.041	.111424	391	.78208	378	.97782	6.5	.0147	
.042	.115232	392	.78271	379	.97788	6.5	.0146	
.043	.119040	392	.78334	379	.97795	6.5	.0145	
.044	.122848	393	.78397	380	.97801	6.5	.0144	
2.045	3.79754	393	3.92927	380	0.97807	6.5	1.1236	0.7
.045	.126656	393	.78460	380	.97814	6.5	.0143	
.047	.130464	394	.78523	381	.97820	6.5	.0142	
.048	.134272	394	.78586	381	.97827	6.4	.0141	
.049	.138080	394	.78649	382	.97833	6.4	.0140	
2.050	3.81656	395	3.94832	382	0.97840	6.4	1.1342	0.7
x	$\tanh x$	$= F_1'$	$\coth x$	$= F_2'$	$\sinh x$	$= F_3'$	$\cosh x$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
2.099	8.80928	305	3.98332	382	0.96730	6.4	1.0337	0.7
.0951	8.81353	305	.95414	382	.96736	6.4	.0330	
.0952	8.81779	305	.95507	383	.96752	6.4	.0336	
.0953	8.82145	305	.95600	383	.96769	6.4	.0335	
.0954	8.82541	305	.95693	384	.96785	6.4	.0334	
2.055	8.89337	307	3.96747	384	0.96771	6.4	1.0334	0.7
.0959	8.89334	307	.97131	384	.96778	6.3	.0333	
.097	8.89712	308	.97515	385	.96784	6.3	.0332	
.098	8.89140	308	.97600	385	.96790	6.3	.0332	
.099	8.89547	308	.97685	386	.96797	6.3	.0331	
2.050	8.89326	300	3.96671	386	0.96803	6.3	1.0330	0.7
.091	8.89345	309	.96957	385	.96800	6.3	.0330	
.092	8.89744	309	.96944	387	.96816	6.3	.0329	
.093	8.89124	300	.96831	387	.96822	6.3	.0328	
.094	8.89544	300	.96818	388	.96828	6.2	.0328	
2.045	8.89324	301	4.00605	388	0.96831	6.2	1.0327	0.7
.090	8.89325	301	.96934	388	.96811	6.2	.0326	
.097	8.89736	301	.97382	390	.96817	6.2	.0326	
.098	8.89128	302	.97771	390	.96853	6.2	.0325	
.099	8.89530	302	.97661	390	.96859	6.2	.0324	
2.070	8.89332	303	4.02550	390	0.96855	6.2	1.0324	0.7
.071	.99335	303	.99311	390	.96872	6.2	.0323	
.072	.99738	303	.99331	391	.96878	6.1	.0322	
.073	.99141	304	.99722	391	.96884	6.1	.0322	
.074	.99545	304	.99113	392	.96890	6.1	.0321	
2.075	8.91930	305	4.03505	392	0.96896	6.1	1.0320	0.7
.076	.99354	305	.99337	392	.96902	6.1	.0320	0.6
.077	.99759	305	.99300	393	.96908	6.1	.0319	
.078	.99165	305	.99683	393	.96914	6.1	.0318	
.079	.99571	306	.99076	394	.96920	6.1	.0318	
2.080	8.93677	306	4.06470	394	0.96926	6.1	1.0317	0.6
.081	.99364	307	.99634	394	.96933	6.0	.0316	
.082	.99791	307	.99739	395	.96939	6.0	.0316	
.083	.99168	308	.99754	395	.96945	6.0	.0315	
.084	.99566	308	.99049	396	.96951	6.0	.0315	
2.085	8.96013	308	4.08445	397	0.96957	6.0	1.0314	0.6
.086	.99423	309	.99811	397	.96963	6.0	.0313	
.087	.99831	309	.99238	397	.96969	6.0	.0313	
.088	.99241	310	.99635	397	.96975	6.0	.0312	
.089	.99651	310	.99032	398	.96980	5.9	.0311	
2.090	8.98061	310	4.10330	398	0.96985	5.9	1.0311	0.6
.091	.99472	311	.99828	398	.96992	5.9	.0310	
.092	.99883	311	.99247	399	.96998	5.9	.0309	
.093	.99291	312	.99656	399	.97004	5.9	.0309	
.094	.99706	312	.99056	400	.97010	5.9	.0308	
2.095	4.00119	312	4.12426	400	0.97016	5.9	1.0308	0.6
.096	.00531	313	.12826	401	.97022	5.9	.0307	
.097	.00941	313	.13227	401	.97028	5.9	.0306	
.098	.01358	314	.13628	401	.97034	5.8	.0306	
.099	.01771	314	.14029	402	.97039	5.8	.0305	
2.100	4.02186	314	4.14431	402	0.97045	5.8	1.0304	0.6
u	$\ln \sinh u$	$= F_1'$	$\ln \cosh u$	$= F_2'$	$\ln \tanh u$	$= F_3'$	$\ln \coth u$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
2.100	4.02186	414	4.14131	402	0.97045	5.1	1.0303	0.6
101	.02000	415	1.0814	401	.02000	5.2	.0304	
102	.04015	415	1.15437	401	.04015	5.3	.0603	
103	.06131	416	1.23100	402	.06063	5.4	.0901	
104	.08347	416	1.30813	401	.08048	5.5	.1202	
2.105	4.04263	416	4.16167	401	0.97074	5.6	1.0304	0.6
105	.04080	417	1.0852	405	.04080	5.8	.0301	
106	.08097	417	1.17457	405	.08096	5.7	.0600	
108	.05514	418	1.19602	410	.05090	5.7	.0300	
109	.05012	418	1.18048	406	.05067	5.7	.0299	
2.110	4.06190	418	4.18174	406	0.97103	5.7	1.0308	0.6
111	.06769	419	1.08661	407	.06769	5.7	.0298	
112	.07188	419	1.09288	407	.07114	5.7	.0307	
113	.07607	420	1.09905	408	.07130	5.7	.0307	
114	.08027	420	1.10503	408	.07140	5.7	.0306	
2.115	4.08118	421	4.20511	408	0.97131	5.7	1.0315	0.6
116	.08698	421	1.09230	409	.07147	5.7	.0305	
117	.09219	421	1.11330	409	.07143	5.7	.0304	
118	.09711	422	1.12738	410	.07138	5.7	.0301	
119	.10132	422	1.21158	410	.07154	5.6	.0303	
2.120	4.10555	423	4.22558	411	0.97159	5.6	1.0321	0.6
121	.10978	423	1.22169	411	.07165	5.6	.0302	
122	.11401	423	1.21180	411	.07171	5.6	.0301	
123	.11835	424	1.20912	411	.07176	5.6	.0301	
124	.12269	424	1.21201	412	.07182	5.6	.0300	
2.125	4.12673	425	4.24617	412	0.97187	5.5	1.0329	0.6
126	.13098	425	1.23930	413	.07193	5.5	.0300	
127	.13521	425	1.25113	414	.07198	5.5	.0298	
128	.13949	426	1.25890	414	.07201	5.5	.0298	
129	.14375	426	1.26271	414	.07200	5.5	.0297	
2.130	4.14801	427	4.26688	415	0.97215	5.5	1.0336	0.6
131	.15228	427	1.27100	415	.07220	5.5	.0296	
132	.15656	428	1.27516	416	.07225	5.5	.0295	
133	.16083	428	1.27932	416	.07231	5.5	.0295	
134	.16512	428	1.28348	417	.07237	5.4	.0294	
2.135	4.16940	429	4.28705	417	0.97242	5.4	1.0341	0.6
136	.17369	429	1.29182	417	.07248	5.4	.0293	
137	.17798	430	1.29660	418	.07253	5.4	.0292	
138	.18228	430	1.30017	418	.07259	5.4	.0292	
139	.18658	430	1.30430	419	.07264	5.4	.0291	
2.140	4.19089	431	4.30855	419	0.97269	5.4	1.0348	0.6
141	.19520	431	1.31274	420	.07275	5.4	.0290	
142	.19952	432	1.31691	420	.07280	5.4	.0290	
143	.20381	432	1.32111	420	.07285	5.4	.0290	
144	.20810	433	1.32531	421	.07291	5.3	.0288	
2.145	4.21249	433	4.33055	421	0.97296	5.3	1.0356	0.6
146	.21682	433	1.33477	422	.07301	5.3	.0287	
147	.22115	434	1.33900	422	.07307	5.3	.0287	
148	.22549	434	1.34321	423	.07312	5.3	.0286	
149	.22984	435	1.34744	423	.07317	5.3	.0286	
2.150	4.23419	435	4.35067	423	0.97323	5.3	1.0375	0.6
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

BRITISH STANDARD TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁	cosh u	= F ₂	tanh u	= F ₃	coth u	= F ₄
2.150	4.23410	435	4.35907	423	0.07343	5.3	1.0275	0.5
.151	4.2351	435	4.3591	424	0.07348	5.3	1.0275	
.152	4.2361	435	4.35915	424	0.07353	5.3	1.0275	
.153	4.2371	435	4.3592	425	0.07358	5.3	1.0275	
.154	4.2382	437	4.3593	425	0.07364	5.2	1.0275	
2.155	4.2393	437	4.37100	426	0.07369	5.2	1.0272	0.5
.156	4.2403	438	4.3715	426	0.07374	5.2	1.0272	0.5
.157	4.2415	438	4.3811	426	0.07379	5.2	1.0271	0.5
.158	4.2425	438	4.38168	427	0.07385	5.2	1.0271	0.5
.159	4.2435	439	4.3856	427	0.07390	5.2	1.0270	0.5
2.160	4.24791	439	4.39323	428	0.07395	5.2	1.0270	0.5
.161	4.2481	440	4.39751	428	0.07399	5.2	1.0269	
.162	4.2490	440	4.40186	429	0.07405	5.2	1.0268	
.163	4.25011	441	4.40608	429	0.07410	5.2	1.0268	
.164	4.2511	441	4.41038	430	0.07416	5.1	1.0267	
2.165	4.25093	441	4.41468	430	0.07421	5.1	1.0267	0.5
.166	4.25131	442	4.41898	430	0.07426	5.1	1.0266	
.167	4.25176	442	4.42328	431	0.07431	5.1	1.0266	
.168	4.25219	443	4.42756	431	0.07436	5.1	1.0265	
.169	4.25262	443	4.43181	432	0.07441	5.1	1.0265	
2.170	4.25205	444	4.43603	432	0.07446	5.1	1.0264	0.5
.171	4.25249	444	4.44029	433	0.07451	5.1	1.0264	
.172	4.25293	444	4.44458	433	0.07456	5.1	1.0263	
.173	4.25338	445	4.44882	434	0.07461	5.1	1.0263	
.174	4.25383	445	4.45305	434	0.07466	5.0	1.0262	
2.175	4.25329	446	4.45729	434	0.07471	5.0	1.0262	0.5
.176	4.25375	446	4.46154	435	0.07476	5.0	1.0261	
.177	4.25421	447	4.46579	435	0.07481	5.0	1.0261	
.178	4.25468	447	4.47005	436	0.07487	5.0	1.0260	
.179	4.25515	448	4.47431	436	0.07492	5.0	1.0260	
2.180	4.25463	448	4.47857	437	0.07497	5.0	1.0260	0.5
.181	4.25511	448	4.48284	437	0.07502	5.0	1.0259	
.182	4.25559	449	4.48712	438	0.07507	5.0	1.0259	
.183	4.25607	449	4.49140	438	0.07512	5.0	1.0257	
.184	4.25655	450	4.49568	438	0.07517	4.9	1.0257	
2.185	4.25603	450	4.50000	439	0.07522	4.9	1.0256	0.5
.186	4.25651	451	4.50432	439	0.07527	4.9	1.0256	
.187	4.25699	451	4.50865	440	0.07532	4.9	1.0255	
.188	4.25747	451	4.51298	440	0.07537	4.9	1.0255	
.189	4.25795	452	4.51731	441	0.07542	4.9	1.0254	
2.190	4.25743	452	4.52165	441	0.07547	4.9	1.0254	0.5
.191	4.25791	453	4.52598	442	0.07552	4.9	1.0253	
.192	4.25839	453	4.53032	442	0.07557	4.9	1.0253	
.193	4.25887	454	4.53465	443	0.07562	4.9	1.0252	
.194	4.25935	454	4.53898	443	0.07567	4.8	1.0252	
2.195	4.25883	455	4.54332	443	0.07572	4.8	1.0251	0.5
.196	4.25931	455	4.54765	444	0.07577	4.8	1.0251	
.197	4.25979	455	4.55198	444	0.07582	4.8	1.0250	
.198	4.26027	456	4.55632	445	0.07587	4.8	1.0250	
.199	4.26075	456	4.56065	445	0.07592	4.8	1.0249	
2.200	4.26023	457	4.56500	446	0.07597	4.8	1.0249	0.5
u	tan gd u	= F ₅	sec gd u	= F ₆	sin gd u	= F ₇	csc gd u	= F ₈

Natural Hyperbolic Functions.

x	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$	$\operatorname{sech} x$	$\operatorname{csch} x$	$\operatorname{arcsinh} x$	$\operatorname{arcosh} x$
2.200	4.45721	457	4.56704	449	0.02571	4.38	1.0249	0.5
2.201	4.46168	457	4.57257	449	0.02570	4.38	1.0249	
2.202	4.46615	458	4.57810	447	0.02569	4.38	1.0249	
2.203	4.47061	458	4.58363	447	0.02568	4.38	1.0249	
2.204	4.47507	459	4.58916	445	0.02567	4.38	1.0249	
2.205	4.48000	459	4.59469	444	0.02566	4.37	1.0249	0.5
2.206	4.48499	459	4.59972	444	0.02565	4.37	1.0249	
2.207	4.48998	460	4.60475	442	0.02564	4.37	1.0249	
2.208	4.49497	460	4.60978	441	0.02563	4.37	1.0249	
2.209	4.49996	461	4.61481	440	0.02562	4.37	1.0249	
2.210	4.50495	461	4.61984	439	0.02561	4.37	1.0249	0.5
2.211	4.50994	462	4.62487	438	0.02560	4.37	1.0249	
2.212	4.51493	462	4.62990	437	0.02559	4.37	1.0249	
2.213	4.51992	463	4.63493	436	0.02558	4.37	1.0249	
2.214	4.52491	463	4.63996	435	0.02557	4.37	1.0249	
2.215	4.52990	464	4.64499	434	0.02556	4.37	1.0249	0.5
2.216	4.53489	464	4.65002	433	0.02555	4.37	1.0249	
2.217	4.53988	464	4.65505	433	0.02554	4.37	1.0249	
2.218	4.54487	465	4.66008	431	0.02553	4.37	1.0249	
2.219	4.54986	465	4.66511	431	0.02552	4.37	1.0249	
2.220	4.55485	466	4.67014	430	0.02551	4.36	1.0249	0.5
2.221	4.55984	466	4.67517	429	0.02550	4.36	1.0249	
2.222	4.56483	467	4.68020	428	0.02549	4.36	1.0249	
2.223	4.56982	467	4.68523	427	0.02548	4.36	1.0249	
2.224	4.57481	468	4.69026	427	0.02547	4.36	1.0249	
2.225	4.57980	468	4.69529	426	0.02546	4.36	1.0249	0.5
2.226	4.58479	469	4.70032	425	0.02545	4.36	1.0249	
2.227	4.58978	469	4.70535	424	0.02544	4.36	1.0249	
2.228	4.59477	469	4.71038	423	0.02543	4.36	1.0249	
2.229	4.59976	470	4.71541	422	0.02542	4.36	1.0249	
2.230	4.60475	470	4.72044	421	0.02541	4.36	1.0249	0.5
2.231	4.60974	471	4.72547	420	0.02540	4.36	1.0249	
2.232	4.61473	471	4.73050	419	0.02539	4.36	1.0249	
2.233	4.61972	472	4.73553	418	0.02538	4.36	1.0249	
2.234	4.62471	472	4.74056	417	0.02537	4.36	1.0249	
2.235	4.62970	473	4.74559	416	0.02536	4.36	1.0249	0.5
2.236	4.63469	473	4.75062	415	0.02535	4.36	1.0249	
2.237	4.63968	474	4.75565	414	0.02534	4.36	1.0249	
2.238	4.64467	474	4.76068	413	0.02533	4.36	1.0249	
2.239	4.64966	475	4.76571	412	0.02532	4.36	1.0249	
2.240	4.65465	475	4.77074	411	0.02531	4.36	1.0249	0.5
2.241	4.65964	475	4.77577	410	0.02530	4.36	1.0249	
2.242	4.66463	476	4.78080	409	0.02529	4.36	1.0249	
2.243	4.66962	476	4.78583	408	0.02528	4.36	1.0249	
2.244	4.67461	477	4.79086	407	0.02527	4.36	1.0249	
2.245	4.67960	477	4.79589	406	0.02526	4.36	1.0249	0.5
2.246	4.68459	478	4.80092	405	0.02525	4.36	1.0249	
2.247	4.68958	478	4.80595	404	0.02524	4.36	1.0249	
2.248	4.69457	479	4.81098	403	0.02523	4.36	1.0249	
2.249	4.69956	479	4.81601	402	0.02522	4.36	1.0249	
2.250	4.70455	480	4.82104	401	0.02521	4.36	1.0249	0.5
x	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$	$\operatorname{sech} x$	$\operatorname{csch} x$	$\operatorname{arcsinh} x$	$\operatorname{arcosh} x$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
2.350	4.469147	480	4.79657	459	0.92803	4.3	1.0225	0.5
.351	4.47607	480	4.80126	459	.92807	4.3	.0221	
.352	4.48297	481	4.80595	459	.92811	4.3	.0221	
.353	4.48985	481	4.81064	459	.92815	4.3	.0221	
.354	4.49670	482	4.81537	459	.92819	4.3	.0221	0.5
2.355	4.50351	482	4.82008	457	0.92824	4.3	1.0222	0.4
.356	4.51033	482	4.82480	457	.92828	4.3	.0222	
.357	4.51716	483	4.82952	457	.92833	4.3	.0222	
.358	4.52399	483	4.83425	457	.92837	4.3	.0221	
.359	4.53083	484	4.83898	457	.92841	4.3	.0221	
2.360	4.53767	484	4.84372	454	0.92846	4.3	1.0220	0.4
.361	4.54452	485	4.84846	454	.92850	4.3	.0220	
.362	4.55137	485	4.85321	455	.92854	4.2	.0219	
.363	4.55822	485	4.85796	455	.92858	4.2	.0219	
.364	4.56508	485	4.86272	456	.92863	4.2	.0218	
2.365	4.57195	487	4.86748	456	0.92867	4.2	1.0218	0.4
.366	4.57882	487	4.87224	457	.92871	4.2	.0218	
.367	4.58570	488	4.87701	457	.92875	4.2	.0217	
.368	4.59257	488	4.88179	458	.92879	4.2	.0217	
.369	4.59945	489	4.88657	458	.92884	4.2	.0216	
2.370	4.60634	489	4.89136	459	0.92888	4.2	1.0216	0.4
.371	4.61324	490	4.89615	459	.92892	4.2	.0215	
.372	4.62013	490	4.90094	460	.92896	4.2	.0215	
.373	4.62703	491	4.90574	460	.92900	4.2	.0214	
.374	4.63395	491	4.91055	461	.92905	4.1	.0214	
2.375	4.64086	492	4.91536	461	0.92909	4.1	1.0214	0.4
.376	4.64778	492	4.92017	462	.92913	4.1	.0213	
.377	4.65471	492	4.92499	462	.92917	4.1	.0213	
.378	4.66165	493	4.92982	463	.92921	4.1	.0212	
.379	4.66860	493	4.93465	463	.92925	4.1	.0212	
2.380	4.67553	494	4.93948	464	0.92929	4.1	1.0211	0.4
.381	4.68248	494	4.94432	464	.92933	4.1	.0211	
.382	4.68943	495	4.94917	465	.92937	4.1	.0211	
.383	4.69639	495	4.95402	465	.92941	4.1	.0210	
.384	4.70336	496	4.95887	466	.92945	4.1	.0210	
2.385	4.71031	496	4.96373	466	0.92950	4.1	1.0210	0.4
.386	4.71728	497	4.96859	467	.92954	4.1	.0209	
.387	4.72425	497	4.97346	467	.92958	4.0	.0208	
.388	4.73123	498	4.97834	468	.92962	4.0	.0208	
.389	4.73822	498	4.98322	468	.92966	4.0	.0208	
2.390	4.74519	499	4.98810	469	0.92970	4.0	1.0207	0.4
.391	4.75218	499	4.99299	469	.92974	4.0	.0207	
.392	4.75918	500	4.99789	470	.92978	4.0	.0206	
.393	4.76618	500	5.00279	470	.92982	4.0	.0206	
.394	4.77319	501	5.00769	471	.92986	4.0	.0205	
2.395	4.78019	501	5.01260	471	0.92990	4.0	1.0205	0.4
.396	4.78720	502	5.01751	472	.92994	4.0	.0205	
.397	4.79422	502	5.02243	472	.92998	4.0	.0204	
.398	4.80125	503	5.02736	473	.93002	4.0	.0204	
.399	4.80828	503	5.03229	473	.93006	3.9	.0203	
2.400	4.81533	504	5.03722	474	0.93010	3.9	1.0203	0.4
u	tanh u	= F ₁ '	coth u	= F ₂ '	sinh u	= F ₃ '	cosh u	= F ₄ '

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\operatorname{sech} u$	$\operatorname{csch} u$
2.300	4.92696	501	5.03732	491	0.08010	1.0381
2.301	491400	501	5.03732	491	0.08011	1.0381
2.302	491705	505	5.03732	495	0.08012	1.0381
2.303	492110	505	5.03732	495	0.08012	1.0381
2.304	492515	505	5.03732	495	0.08012	1.0381
2.305	4.92624	506	5.03732	496	0.08013	1.0381
2.306	492627	507	5.03732	497	0.08014	1.0381
2.307	492731	507	5.03732	497	0.08014	1.0381
2.308	492742	508	5.03732	498	0.08014	1.0381
2.309	492750	508	5.03732	498	0.08015	1.0381
2.310	4.92758	509	5.03732	499	0.08015	1.0381
2.311	492767	509	5.03732	499	0.08015	1.0381
2.312	492777	510	5.03732	500	0.08016	1.0381
2.313	5.02286	510	5.03732	500	0.08016	1.0381
2.314	492797	511	5.03732	501	0.08016	1.0381
2.315	5.01308	511	5.03732	501	0.08016	1.0381
2.316	492809	512	5.03732	502	0.08017	1.0381
2.317	492811	512	5.03732	502	0.08017	1.0381
2.318	492811	513	5.03732	503	0.08017	1.0381
2.319	492812	513	5.03732	503	0.08017	1.0381
2.320	5.01320	514	5.03732	504	0.08017	1.0381
2.321	492813	514	5.03732	504	0.08017	1.0381
2.322	492813	515	5.03732	505	0.08017	1.0381
2.323	492813	515	5.03732	505	0.08017	1.0381
2.324	492813	516	5.03732	506	0.08017	1.0381
2.325	5.01345	516	5.03732	506	0.08017	1.0381
2.326	492814	517	5.03732	507	0.08017	1.0381
2.327	492814	517	5.03732	507	0.08017	1.0381
2.328	492814	518	5.03732	508	0.08017	1.0381
2.329	492814	518	5.03732	508	0.08017	1.0381
2.330	5.01362	519	5.03732	509	0.08017	1.0381
2.331	492815	519	5.03732	510	0.08017	1.0381
2.332	492815	520	5.03732	511	0.08017	1.0381
2.333	492815	520	5.03732	511	0.08017	1.0381
2.334	492815	521	5.03732	511	0.08017	1.0381
2.335	5.01383	521	5.03732	512	0.08017	1.0381
2.336	492815	522	5.03732	512	0.08017	1.0381
2.337	492815	522	5.03732	513	0.08017	1.0381
2.338	492815	523	5.03732	513	0.08017	1.0381
2.339	492815	523	5.03732	514	0.08017	1.0381
2.340	5.01405	524	5.03732	515	0.08017	1.0381
2.341	492815	524	5.03732	515	0.08017	1.0381
2.342	492815	525	5.03732	516	0.08017	1.0381
2.343	492815	525	5.03732	516	0.08017	1.0381
2.344	492815	526	5.03732	516	0.08017	1.0381
2.345	5.01427	526	5.03732	517	0.08017	1.0381
2.346	492815	527	5.03732	517	0.08017	1.0381
2.347	492815	527	5.03732	518	0.08017	1.0381
2.348	492815	528	5.03732	518	0.08017	1.0381
2.349	492815	529	5.03732	519	0.08017	1.0381
2.350	5.01450	529	5.03732	520	0.08017	1.0381
u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\operatorname{sech} u$	$\operatorname{csch} u$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
2.350	5.49510	520	5.20247	520	0.98197	3.6	1.0184	0.4
.351	.20030	530	.20597	520	.98201	3.6	.0183	
.352	.20560	530	.30687	521	.98204	3.6	.0183	
.353	.21100	531	.30608	531	.98208	3.6	.0183	
.354	.21630	531	.31130	521	.98212	3.5	.0182	
2.355	5.22162	532	5.31651	522	0.98215	3.5	1.0182	0.4
.356	.22604	532	.32174	523	.98219	3.5	.0181	
.357	.23226	533	.32607	523	.98222	3.5	.0181	
.358	.23759	533	.33220	524	.98226	3.5	.0181	
.359	.24293	534	.33744	524	.98229	3.5	.0180	
2.360	5.24827	534	5.34369	525	0.98233	3.5	1.0180	0.4
.361	.25361	535	.34704	525	.98236	3.5	.0180	
.362	.25895	535	.35319	526	.98240	3.5	.0179	
.363	.26432	536	.35845	526	.98243	3.5	.0179	
.364	.26968	536	.36372	527	.98247	3.5	.0178	
2.365	5.27504	537	5.36900	528	0.98250	3.5	1.0178	0.4
.366	.28042	537	.37447	528	.98254	3.5	.0178	
.367	.28579	538	.37985	529	.98257	3.5	.0177	
.368	.29118	538	.38521	529	.98261	3.4	.0177	
.369	.29656	539	.39054	530	.98264	3.4	.0177	
2.370	5.30195	540	5.39544	530	0.98267	3.4	1.0176	0.4
.371	.30735	540	.40074	531	.98271	3.4	.0176	
.372	.31270	541	.40605	531	.98274	3.4	.0176	
.373	.31817	541	.41137	532	.98278	3.4	.0175	
.374	.32358	542	.41669	532	.98281	3.4	.0175	
2.375	5.32900	542	5.42201	532	0.98285	3.4	1.0175	0.4
.376	.32442	543	.42735	532	.98288	3.4	.0174	0.4
.377	.32985	543	.43268	534	.98291	3.4	.0174	0.4
.378	.33520	544	.43803	535	.98295	3.4	.0173	0.3
.379	.34057	544	.44337	535	.98298	3.4	.0173	0.3
2.380	5.34618	545	5.44873	536	0.98304	3.4	1.0173	0.3
.381	.35163	545	.45409	536	.98308	3.4	.0172	
.382	.35708	546	.45945	537	.98312	3.4	.0172	
.383	.36255	546	.46482	537	.98315	3.3	.0172	
.384	.36801	547	.47020	538	.98318	3.3	.0171	
2.385	5.35149	548	5.47558	538	0.98318	3.3	1.0171	0.3
.386	.36807	548	.48060	539	.98322	3.3	.0171	
.387	.37445	549	.48605	539	.98325	3.3	.0170	
.388	.38094	549	.49175	540	.98328	3.3	.0170	
.389	.40543	550	.49715	541	.98331	3.2	.0170	
2.390	5.41093	550	5.50295	541	0.98335	3.2	1.0169	0.3
.391	.41644	551	.50798	542	.98338	3.2	.0169	
.392	.42195	551	.51320	542	.98341	3.2	.0169	
.393	.42746	552	.51882	543	.98345	3.2	.0168	
.394	.43299	552	.52445	543	.98348	3.2	.0168	
2.395	5.41851	553	5.52959	544	0.98351	3.2	1.0168	0.3
.396	.44405	554	.53513	544	.98354	3.2	.0167	
.397	.44958	554	.54057	545	.98358	3.2	.0167	
.398	.45513	555	.54605	546	.98361	3.2	.0167	
.399	.46068	555	.55148	546	.98364	3.2	.0166	
2.400	5.46623	556	5.55695	547	0.98367	3.2	1.0166	0.3
x	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$
2.400	5.46423	559	5.59965	547	0.98467	3.2	1.0166	0.3
.401	.17179	559	.59242	547	.98471	3.2	.0168	
.402	.17735	557	.59799	548	.98474	3.2	.0169	
.403	.18292	557	.59357	548	.98477	3.2	.0169	
.404	.18850	558	.59915	549	.98480	3.2	.0169	
2.405	5.49008	558	5.58135	549	0.98483	3.2	1.0166	0.3
.406	.19367	559	.59484	550	.98487	3.2	.0169	
.407	.19925	560	.59543	551	.98490	3.2	.0169	
.408	.20483	560	.59601	551	.98494	3.2	.0169	
.409	.21040	561	.60057	552	.98498	3.2	.0169	
2.410	5.52207	561	5.61180	552	0.98499	3.2	1.0166	0.3
.411	.52760	562	.61744	553	.98503	3.2	.0169	
.412	.53313	562	.62201	553	.98506	3.2	.0169	
.413	.53861	563	.62648	554	.98509	3.2	.0169	
.414	.54410	563	.63102	554	.98512	3.2	.0169	
2.415	5.55830	564	5.60067	555	0.98515	3.1	1.0166	0.3
.416	.55384	565	.61512	556	.98518	3.1	.0169	
.417	.55940	565	.62068	556	.98522	3.1	.0169	
.418	.56495	566	.62624	557	.98525	3.1	.0169	
.419	.57050	566	.63181	557	.98528	3.1	.0169	
2.420	5.57817	567	5.60739	558	0.98531	3.1	1.0159	0.3
.421	.57374	567	.62707	558	.98534	3.1	.0159	
.422	.57931	568	.63265	559	.98537	3.1	.0159	
.423	.58488	568	.63815	560	.98540	3.1	.0158	
.424	.59045	569	.64375	560	.98543	3.1	.0158	
2.425	5.60688	570	5.60635	561	0.98546	3.1	1.0158	0.3
.426	.60257	570	.70090	561	.98549	3.1	.0157	
.427	.60818	571	.70648	562	.98553	3.1	.0157	
.428	.61379	571	.71200	562	.98556	3.1	.0157	
.429	.61940	572	.71753	563	.98559	3.1	.0157	
2.430	5.63542	572	5.72136	563	0.98562	3.1	1.0159	0.3
.431	.63115	573	.72690	564	.98565	3.0	.0159	
.432	.63688	573	.73243	565	.98568	3.0	.0159	
.433	.64252	574	.73797	566	.98571	3.0	.0158	
.434	.64816	575	.74350	566	.98574	3.0	.0158	
2.435	5.66411	575	5.75171	566	0.98577	3.0	1.0158	0.3
.436	.65986	576	.75728	567	.98580	3.0	.0158	
.437	.66543	576	.76285	568	.98583	3.0	.0158	
.438	.67100	577	.76842	568	.98586	3.0	.0158	
.439	.67657	577	.77399	569	.98589	3.0	.0158	
2.440	5.69201	578	5.78010	569	0.98592	3.0	1.0153	0.3
.441	.68772	579	.78566	570	.98595	3.0	.0153	
.442	.69331	579	.79121	570	.98598	3.0	.0153	
.443	.70001	580	.79677	571	.98601	3.0	.0153	
.444	.70561	580	.80232	572	.98604	3.0	.0153	
2.445	5.72191	581	5.80801	572	0.98607	3.0	1.0152	0.3
.446	.72772	581	.81430	573	.98610	3.0	.0151	
.447	.73354	582	.82000	573	.98613	3.0	.0151	
.448	.73936	583	.82581	574	.98616	2.9	.0151	
.449	.74519	583	.83157	575	.98619	2.9	.0150	
2.450	5.75103	584	5.83732	575	0.98622	2.9	1.0150	0.3
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
2.450	5.75103	584	5.83732	575	0.98522	2.0	1.0150	0.3
.451	75187	584	84.207	575	.18525	2.0	.0150	
.452	76271	585	84.881	576	.18528	2.0	.0149	
.453	76856	585	85.490	577	.18530	2.0	.0149	
.454	77442	586	86.037	577	.18533	2.0	.0149	
2.455	5.78039	587	5.85615	578	0.98536	2.0	1.0149	0.3
.456	78015	587	87.193	579	.18539	2.0	.0148	
.457	79003	588	87.772	579	.18542	2.0	.0148	
.458	79791	588	88.352	580	.18545	2.0	.0148	
.459	80380	589	88.932	580	.18548	2.0	.0147	
2.460	5.80959	590	5.88512	581	0.98551	2.0	1.0147	0.3
.461	81539	590	90.094	582	.18554	2.0	.0147	
.462	82140	591	90.675	582	.18557	2.0	.0146	
.463	82740	591	91.258	583	.18559	2.0	.0146	
.464	83332	592	91.841	583	.18562	2.0	.0146	
2.465	5.83084	593	5.91445	584	0.98565	2.0	1.0146	0.3
.466	84516	593	93.009	585	.18568	2.0	.0145	
.467	85110	594	93.594	585	.18571	2.0	.0145	
.468	85704	594	94.179	586	.18574	2.0	.0145	
.469	86298	595	94.765	586	.18576	2.0	.0144	
2.470	5.86893	595	5.95352	587	0.98579	2.0	1.0144	0.3
.471	87489	596	95.939	587	.18582	2.0	.0144	
.472	88085	597	96.527	588	.18585	2.0	.0144	
.473	88682	597	97.115	589	.18588	2.0	.0143	
.474	89279	498	97.704	589	.18590	2.0	.0143	
2.475	5.89777	598	5.98264	590	0.98593	2.0	1.0143	0.3
.476	90476	599	98.884	591	.18596	2.0	.0142	
.477	91075	599	99.474	591	.18599	2.0	.0142	
.478	91675	600	100.066	592	.18602	2.0	.0142	
.479	92275	601	100.658	593	.18604	2.0	.0142	
2.480	5.92876	601	6.01250	593	0.98607	2.0	1.0141	0.3
.481	93478	602	101.844	593	.18610	2.0	.0141	
.482	94080	603	102.437	594	.18613	2.0	.0141	
.483	94682	603	103.032	595	.18615	2.0	.0140	
.484	95285	604	103.627	595	.18618	2.0	.0140	
2.485	5.95890	604	6.04222	595	0.98621	2.0	1.0140	0.3
.486	96494	605	104.818	596	.18624	2.0	.0140	
.487	97099	606	105.415	597	.18626	2.0	.0139	
.488	97705	606	106.013	598	.18629	2.0	.0139	
.489	98311	607	106.611	598	.18632	2.0	.0139	
2.490	5.98918	607	6.07209	599	0.98635	2.0	1.0138	0.3
.491	99526	608	107.809	600	.18637	2.0	.0138	
.492	100134	608	108.408	600	.18640	2.0	.0138	
.493	100743	609	109.009	601	.18643	2.0	.0138	
.494	101352	610	109.610	601	.18645	2.0	.0137	
2.495	6.01962	610	6.10211	602	0.98648	2.0	1.0137	0.3
.496	102572	611	110.814	603	.18651	2.0	.0137	
.497	103183	611	111.417	603	.18653	2.0	.0136	
.498	103795	612	112.020	604	.18656	2.0	.0136	
.499	104408	613	112.624	604	.18659	2.0	.0136	
2.500	6.05020	613	6.13229	605	0.98661	2.0	1.0135	0.3
u	ln u	= F ₁ '	exp u	= F ₂ '	sin u	= F ₃ '	cos u	= F ₄ '

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
2.500	6.05006	61.1	6.11253	603	0.08004	2.7	1.0110	0.3
.501	.00501	61.1	.11253	603	.08004	2.7	.0110	
.502	.00502	61.1	.11410	603	.08007	2.7	.0115	
.503	.00503	61.1	.11567	603	.08010	2.7	.0120	
.504	.00504	61.1	.11724	603	.08013	2.7	.0125	
2.505	6.05001	61.0	6.16562	608	0.08017	2.6	1.0113	0.1
.506	.00506	61.0	.11880	608	.08020	2.6	.0118	
.507	.00507	61.0	.12037	608	.08023	2.6	.0123	
.508	.00508	61.0	.12194	608	.08026	2.6	.0128	
.509	.00509	61.0	.12351	608	.08029	2.6	.0133	
2.510	6.11031	61.0	6.20380	611	0.08033	2.6	1.0113	0.3
.511	.11031	61.0	.20380	611	.08033	2.6	.0113	
.512	.11233	62.1	.20541	612	.08034	2.6	.0117	
.513	.11411	62.1	.21146	613	.08036	2.6	.0121	
.514	.11605	62.2	.21760	614	.08038	2.6	.0125	
2.515	6.14887	62.2	6.22173	614	0.08040	2.6	1.0113	0.3
.516	.14887	62.2	.22173	615	.08041	2.6	.0121	
.517	.15533	62.1	.22603	616	.08043	2.6	.0125	
.518	.16159	62.1	.23100	616	.08045	2.6	.0129	
.519	.16782	62.5	.23600	617	.08047	2.6	.0133	
2.520	6.17407	62.5	6.25453	617	0.08049	2.6	1.0110	0.1
.521	.17407	62.6	.25071	618	.08050	2.6	.0130	
.522	.18080	62.7	.25686	619	.08051	2.5	.0130	
.523	.18686	62.7	.26308	619	.08052	2.5	.0130	
.524	.19314	62.8	.26947	620	.08054	2.5	.0130	
2.525	6.20542	62.9	6.28538	621	0.08056	2.5	1.0110	0.1
.526	.20542	62.9	.28161	621	.08056	2.5	.0129	
.527	.21080	63.0	.28790	622	.08057	2.5	.0129	
.528	.21630	63.0	.29432	622	.08058	2.5	.0129	
.529	.22061	63.1	.30085	623	.08059	2.5	.0129	
2.530	6.23692	63.2	6.31698	624	0.08059	2.5	1.0110	0.3
.531	.23692	63.2	.31698	624	.08059	2.5	.0127	
.532	.24057	63.1	.32302	625	.08060	2.5	.0127	
.533	.24509	63.1	.32932	626	.08061	2.5	.0127	
.534	.24924	63.1	.33581	626	.08062	2.5	.0127	
2.535	6.26948	63.5	6.34795	627	0.08063	2.5	1.0110	0.3
.536	.26948	63.5	.34795	627	.08063	2.5	.0126	
.537	.27329	63.6	.35400	628	.08064	2.5	.0126	
.538	.27706	63.7	.36008	629	.08065	2.5	.0126	
.539	.28101	63.7	.36627	629	.08066	2.5	.0126	
2.540	6.30040	63.8	6.37007	630	0.08066	2.5	1.0110	0.1
.541	.30040	63.9	.36657	631	.08066	2.5	.0125	0.3
.542	.31317	64.0	.37188	631	.08067	2.4	.0125	0.3
.543	.31957	64.0	.37820	632	.08068	2.4	.0124	0.3
.544	.32597	64.0	.38452	633	.08069	2.4	.0124	0.2
2.545	6.33238	64.1	6.41085	633	0.08070	2.4	1.0110	0.2
.546	.33238	64.2	.41700	634	.08071	2.4	.0124	
.547	.34521	64.2	.42333	635	.08072	2.4	.0123	
.548	.35164	64.3	.42968	635	.08073	2.4	.0123	
.549	.35807	64.1	.43603	636	.08074	2.4	.0123	
2.550	6.36451	64.4	6.44259	636	0.08074	2.4	1.0110	0.2
u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
2.550	6.39451	6.411	0.997459	1.00254	6.39451	6.411	0.997459	1.00254
2.551	6.39466	6.415	0.997460	1.00254	6.39466	6.415	0.997460	1.00254
2.552	6.39481	6.419	0.997461	1.00254	6.39481	6.419	0.997461	1.00254
2.553	6.39497	6.423	0.997462	1.00254	6.39497	6.423	0.997462	1.00254
2.554	6.39513	6.427	0.997463	1.00254	6.39513	6.427	0.997463	1.00254
2.555	6.39529	6.431	0.997464	1.00254	6.39529	6.431	0.997464	1.00254
2.556	6.39545	6.435	0.997465	1.00254	6.39545	6.435	0.997465	1.00254
2.557	6.39561	6.439	0.997466	1.00254	6.39561	6.439	0.997466	1.00254
2.558	6.39577	6.443	0.997467	1.00254	6.39577	6.443	0.997467	1.00254
2.559	6.39593	6.447	0.997468	1.00254	6.39593	6.447	0.997468	1.00254
2.560	6.39609	6.451	0.997469	1.00254	6.39609	6.451	0.997469	1.00254
2.561	6.39625	6.455	0.997470	1.00254	6.39625	6.455	0.997470	1.00254
2.562	6.39641	6.459	0.997471	1.00254	6.39641	6.459	0.997471	1.00254
2.563	6.39657	6.463	0.997472	1.00254	6.39657	6.463	0.997472	1.00254
2.564	6.39673	6.467	0.997473	1.00254	6.39673	6.467	0.997473	1.00254
2.565	6.39689	6.471	0.997474	1.00254	6.39689	6.471	0.997474	1.00254
2.566	6.39705	6.475	0.997475	1.00254	6.39705	6.475	0.997475	1.00254
2.567	6.39721	6.479	0.997476	1.00254	6.39721	6.479	0.997476	1.00254
2.568	6.39737	6.483	0.997477	1.00254	6.39737	6.483	0.997477	1.00254
2.569	6.39753	6.487	0.997478	1.00254	6.39753	6.487	0.997478	1.00254
2.570	6.39769	6.491	0.997479	1.00254	6.39769	6.491	0.997479	1.00254
2.571	6.39785	6.495	0.997480	1.00254	6.39785	6.495	0.997480	1.00254
2.572	6.39801	6.499	0.997481	1.00254	6.39801	6.499	0.997481	1.00254
2.573	6.39817	6.503	0.997482	1.00254	6.39817	6.503	0.997482	1.00254
2.574	6.39833	6.507	0.997483	1.00254	6.39833	6.507	0.997483	1.00254
2.575	6.39849	6.511	0.997484	1.00254	6.39849	6.511	0.997484	1.00254
2.576	6.39865	6.515	0.997485	1.00254	6.39865	6.515	0.997485	1.00254
2.577	6.39881	6.519	0.997486	1.00254	6.39881	6.519	0.997486	1.00254
2.578	6.39897	6.523	0.997487	1.00254	6.39897	6.523	0.997487	1.00254
2.579	6.39913	6.527	0.997488	1.00254	6.39913	6.527	0.997488	1.00254
2.580	6.39929	6.531	0.997489	1.00254	6.39929	6.531	0.997489	1.00254
2.581	6.39945	6.535	0.997490	1.00254	6.39945	6.535	0.997490	1.00254
2.582	6.39961	6.539	0.997491	1.00254	6.39961	6.539	0.997491	1.00254
2.583	6.39977	6.543	0.997492	1.00254	6.39977	6.543	0.997492	1.00254
2.584	6.39993	6.547	0.997493	1.00254	6.39993	6.547	0.997493	1.00254
2.585	6.40009	6.551	0.997494	1.00254	6.40009	6.551	0.997494	1.00254
2.586	6.40025	6.555	0.997495	1.00254	6.40025	6.555	0.997495	1.00254
2.587	6.40041	6.559	0.997496	1.00254	6.40041	6.559	0.997496	1.00254
2.588	6.40057	6.563	0.997497	1.00254	6.40057	6.563	0.997497	1.00254
2.589	6.40073	6.567	0.997498	1.00254	6.40073	6.567	0.997498	1.00254
2.590	6.40089	6.571	0.997499	1.00254	6.40089	6.571	0.997499	1.00254
2.591	6.40105	6.575	0.997500	1.00254	6.40105	6.575	0.997500	1.00254
2.592	6.40121	6.579	0.997501	1.00254	6.40121	6.579	0.997501	1.00254
2.593	6.40137	6.583	0.997502	1.00254	6.40137	6.583	0.997502	1.00254
2.594	6.40153	6.587	0.997503	1.00254	6.40153	6.587	0.997503	1.00254
2.595	6.40169	6.591	0.997504	1.00254	6.40169	6.591	0.997504	1.00254
2.596	6.40185	6.595	0.997505	1.00254	6.40185	6.595	0.997505	1.00254
2.597	6.40201	6.599	0.997506	1.00254	6.40201	6.599	0.997506	1.00254
2.598	6.40217	6.603	0.997507	1.00254	6.40217	6.603	0.997507	1.00254
2.599	6.40233	6.607	0.997508	1.00254	6.40233	6.607	0.997508	1.00254
2.600	6.40249	6.611	0.997509	1.00254	6.40249	6.611	0.997509	1.00254
2.601	6.40265	6.615	0.997510	1.00254	6.40265	6.615	0.997510	1.00254
2.602	6.40281	6.619	0.997511	1.00254	6.40281	6.619	0.997511	1.00254
2.603	6.40297	6.623	0.997512	1.00254	6.40297	6.623	0.997512	1.00254
2.604	6.40313	6.627	0.997513	1.00254	6.40313	6.627	0.997513	1.00254
2.605	6.40329	6.631	0.997514	1.00254	6.40329	6.631	0.997514	1.00254
2.606	6.40345	6.635	0.997515	1.00254	6.40345	6.635	0.997515	1.00254
2.607	6.40361	6.639	0.997516	1.00254	6.40361	6.639	0.997516	1.00254
2.608	6.40377	6.643	0.997517	1.00254	6.40377	6.643	0.997517	1.00254
2.609	6.40393	6.647	0.997518	1.00254	6.40393	6.647	0.997518	1.00254
2.610	6.40409	6.651	0.997519	1.00254	6.40409	6.651	0.997519	1.00254
2.611	6.40425	6.655	0.997520	1.00254	6.40425	6.655	0.997520	1.00254
2.612	6.40441	6.659	0.997521	1.00254	6.40441	6.659	0.997521	1.00254
2.613	6.40457	6.663	0.997522	1.00254	6.40457	6.663	0.997522	1.00254
2.614	6.40473	6.667	0.997523	1.00254	6.40473	6.667	0.997523	1.00254
2.615	6.40489	6.671	0.997524	1.00254	6.40489	6.671	0.997524	1.00254
2.616	6.40505	6.675	0.997525	1.00254	6.40505	6.675	0.997525	1.00254
2.617	6.40521	6.679	0.997526	1.00254	6.40521	6.679	0.997526	1.00254
2.618	6.40537	6.683	0.997527	1.00254	6.40537	6.683	0.997527	1.00254
2.619	6.40553	6.687	0.997528	1.00254	6.40553	6.687	0.997528	1.00254
2.620	6.40569	6.691	0.997529	1.00254	6.40569	6.691	0.997529	1.00254
2.621	6.40585	6.695	0.997530	1.00254	6.40585	6.695	0.997530	1.00254
2.622	6.40601	6.699	0.997531	1.00254	6.40601	6.699	0.997531	1.00254
2.623	6.40617	6.703	0.997532	1.00254	6.40617	6.703	0.997532	1.00254
2.624	6.40633	6.707	0.997533	1.00254	6.40633	6.707	0.997533	1.00254
2.625	6.40649	6.711	0.997534	1.00254	6.40649	6.711	0.997534	1.00254
2.626	6.40665	6.715	0.997535	1.00254	6.40665	6.715	0.997535	1.00254
2.627	6.40681	6.719	0.997536	1.00254	6.40681	6.719	0.997536	1.00254
2.628	6.40697	6.723	0.997537	1.00254	6.40697	6.723	0.997537	1.00254
2.629	6.40713	6.727	0.997538	1.00254	6.40713	6.727	0.997538	1.00254
2.630	6.40729	6.731	0.997539	1.00254	6.40729	6.731	0.997539	1.00254
2.631	6.40745	6.735	0.997540	1.00254	6.40745	6.735	0.997540	1.00254
2.632	6.40761	6.739	0.997541	1.00254	6.40761	6.739	0.997541	1.00254
2.633	6.40777	6.743	0.997542	1.00254	6.40777	6.743	0.997542	1.00254
2.634	6.40793	6.747	0.997543	1.00254	6.40793	6.747	0.997543	1.00254
2.635	6.40809	6.751	0.997544	1.00254	6.40809	6.751	0.997544	1.00254
2.636	6.40825	6.755	0.997545	1.00254	6.40825	6.755	0.997545	1.00254
2.637	6.40841	6.759	0.997546	1.00254	6.40841	6.759	0.997546	1.00254
2.638	6.40857	6.763	0.997547	1.00254	6.40857	6.763	0.997547	1.00254
2.639	6.40873	6.767	0.997548	1.00254	6.40873	6.767	0.997548	1.00254
2.640	6.40889	6.771	0.997549	1.00254	6.40889	6.771	0.997549	1.00254
2.641	6.40905	6.775	0.997550	1.00254	6.40905	6.775	0.997550	1.00254
2.642	6.40921	6.779	0.997551	1.00254	6.40921	6.779	0.997551	1.00254
2.643	6.40937	6.783	0.997552	1.00254	6.40937	6.783	0.997552	1.00254
2.644	6.40953	6.787	0.997553	1.00254	6.40953	6.787	0.997553	1.00254
2.645	6.40969	6.791	0.997554	1.00254	6.40969	6.791	0.997554	1.00254
2.646	6.40985	6.795	0.997555	1.00254	6.40985	6.795	0.997555	1.00254
2.647	6.41001	6.799	0.997556	1.00254	6.41001	6.799	0.997556	1.00254
2.648	6.41017	6.803	0.997557	1.00254	6.41017	6.803	0.997557	1.00254
2.649	6.41033	6.807	0.997558	1.00254	6.41033	6.807	0.997558	1.00254
2.650	6.41049	6.811	0.997559	1.00254	6.41049	6.811	0.997559	1.00254

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$	
2.600	6.60473	677	6.76901	669	0.98003	2,2	1.0111		0,2
.601	.70130	678	.77570	670	.08005	2,2	.0111		
.602	.70828	678	.78241	671	.08007	2,2	.0110		
.603	.71507	679	.78912	672	.08009	2,2	.0110		
.604	.72185	680	.79584	672	.08011	2,2	.0110		
2.605	6.72866	680	6.80295	673	0.98014	2,2	1.0110		0,2
.606	.73547	681	.80230	674	.08016	2,2	.0110		
.607	.74228	682	.81004	674	.08018	2,2	.0109		
.608	.74910	682	.82278	675	.08020	2,1	.0109		
.609	.75593	683	.83053	676	.08022	2,1	.0109		
2.610	6.75676	683	6.83609	676	0.98024	2,1	1.0109		0,2
.611	.76360	684	.84306	677	.08026	2,1	.0109		
.612	.77044	685	.85081	678	.08029	2,1	.0108		
.613	.77730	685	.85861	678	.08031	2,1	.0108		
.614	.78416	686	.86640	679	.08033	2,1	.0108		
2.615	6.77002	687	6.87019	680	0.98035	2,1	1.0108		0,2
.616	.78700	688	.87799	680	.08037	2,1	.0107		
.617	.79388	688	.88580	681	.08039	2,1	.0107		
.618	.80077	689	.89361	682	.08041	2,1	.0107		
.619	.80765	690	.90144	682	.08043	2,1	.0107		
2.620	6.83146	690	6.90486	683	0.98046	2,1	1.0107		0,2
.621	.81837	691	.91110	684	.08048	2,1	.0106		
.622	.82528	691	.91794	685	.08050	2,1	.0106		
.623	.83220	692	.92479	685	.08052	2,1	.0106		
.624	.83913	693	.93164	686	.08054	2,1	.0106		
2.625	6.85607	694	6.93851	687	0.98055	2,1	1.0106		0,2
.626	.84701	695	.94538	687	.08058	2,1	.0105		
.627	.85395	695	.95225	688	.08060	2,1	.0105		
.628	.86091	696	.95914	689	.08062	2,1	.0105		
.629	.86788	697	.96603	689	.08064	2,1	.0105		
2.630	6.90085	697	6.97332	690	0.98066	2,1	1.0104		0,2
.631	.87982	698	.97083	691	.08068	2,1	.0104		
.632	.88681	699	.97774	691	.08070	2,0	.0104		
.633	.89380	699	.98466	692	.08072	2,0	.0104		
.634	.90079	700	.99158	693	.08074	2,0	.0104		
2.635	6.93580	701	7.00752	694	0.98077	2,0	1.0103		0,2
.636	.91281	701	.91446	694	.08079	2,0	.0103		
.637	.91983	702	.92149	695	.08081	2,0	.0103		
.638	.92685	703	.92853	696	.08083	2,0	.0103		
.639	.93388	704	.93557	696	.08085	2,0	.0103		
2.640	6.97092	704	7.04228	697	0.98087	2,0	1.0102		0,2
.641	.94797	705	.94925	698	.08089	2,0	.0102		
.642	.95502	706	.95624	699	.08091	2,0	.0102		
.643	.96208	706	.96323	699	.08093	2,0	.0102		
.644	.96915	707	.97032	700	.08095	2,0	.0102		
2.645	7.00622	708	7.07723	701	0.98097	2,0	1.0101		0,2
.646	.98330	708	.98453	701	.08099	2,0	.0101		
.647	.99039	709	.99155	702	.08101	2,0	.0101		
.648	.99748	710	.99868	703	.08103	2,0	.0101		
.649	.03458	711	.10531	703	.08105	2,0	.0101		
2.650	7.04169	711	7.11234	704	0.98107	2,0	1.0100		0,2
u	$\tan gd u$	$= F_1'$	$\sec gd u$	$= F_2'$	$\sin gd u$	$= F_3'$	$\cos gd u$	$= F_4'$	

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\operatorname{sech} u$	$\coth u$	$\operatorname{csch} u$	$\operatorname{arcsinh} u$	$\operatorname{arccosh} u$
2.650	7.04169	7.11234	704	0.00007	2.0	1.0100	0.2	
.651	.04881	.11930	705	.00000	2.0	.0100		
.652	.08593	.12044	706	.00011	2.0	.0100		
.653	.09306	.12150	707	.00013	2.0	.0100		
.654	.09700	.12257	708	.00015	2.0	.0100		
2.655	7.07734	7.14764	709	0.00016	2.0	1.0099	0.2	
.656	.08440	.15472	710	.00018	2.0	.0099		
.657	.09105	.16181	711	.00020	1.9	.0099		
.658	.09884	.16891	712	.00022	1.9	.0099		
.659	.10599	.17601	713	.00024	1.9	.0099		
2.660	7.11317	7.18312	714	0.00026	1.9	1.0098	0.2	
.661	.12030	.19024	715	.00028	1.9	.0098		
.662	.12755	.19736	716	.00030	1.9	.0098		
.663	.13473	.20449	717	.00032	1.9	.0098		
.664	.14195	.21163	718	.00034	1.9	.0098		
2.665	7.14918	7.21877	719	0.00036	1.9	1.0097	0.2	
.666	.15640	.22593	720	.00038	1.9	.0097		
.667	.16363	.23309	721	.00040	1.9	.0097		
.668	.17086	.24025	722	.00042	1.9	.0097		
.669	.17811	.24743	723	.00044	1.9	.0097		
2.670	7.18536	7.25461	724	0.00046	1.9	1.0096	0.2	
.671	.19262	.26180	725	.00047	1.9	.0096		
.672	.19988	.26899	726	.00049	1.9	.0096		
.673	.20715	.27620	727	.00051	1.9	.0096		
.674	.21443	.28341	728	.00053	1.9	.0096		
2.675	7.22172	7.29963	729	0.00055	1.9	1.0095	0.2	
.676	.22900	.29785	730	.00057	1.9	.0095		
.677	.23622	.30509	731	.00059	1.9	.0095		
.678	.24363	.31233	732	.00060	1.9	.0095		
.679	.25094	.31957	733	.00062	1.9	.0095		
2.680	7.25827	7.32683	734	0.00064	1.9	1.0094	0.2	
.681	.26560	.33409	735	.00066	1.9	.0094		
.682	.27285	.34136	736	.00068	1.9	.0094		
.683	.28028	.34861	737	.00070	1.9	.0094		
.684	.28763	.35588	738	.00072	1.9	.0094		
2.685	7.26400	7.36321	739	0.00073	1.8	1.0094	0.2	
.686	.29336	.37051	740	.00075	1.8	.0093		
.687	.30073	.37782	741	.00077	1.8	.0093		
.688	.30711	.38513	742	.00079	1.8	.0093		
.689	.31450	.39245	743	.00081	1.8	.0093		
2.690	7.27100	7.39978	744	0.00083	1.8	1.0093	0.2	
.691	.32030	.40711	745	.00085	1.8	.0092		
.692	.32771	.41446	746	.00087	1.8	.0092		
.693	.33513	.42181	747	.00088	1.8	.0092		
.694	.34255	.42917	748	.00090	1.8	.0092		
2.695	7.27820	7.43683	749	0.00092	1.8	1.0092	0.2	
.696	.35013	.43400	750	.00094	1.8	.0091		
.697	.35752	.44128	751	.00095	1.8	.0091		
.698	.36493	.44867	752	.00097	1.8	.0091		
.699	.37239	.45607	753	.00099	1.8	.0091		
2.700	7.40506	7.47347	754	0.00101	1.8	1.0091	0.2	
u	$\sinh u$	$\cosh u$	$\tanh u$	$\operatorname{sech} u$	$\coth u$	$\operatorname{csch} u$	$\operatorname{arcsinh} u$	$\operatorname{arccosh} u$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
2.700	7.40626	747	7.47347	741	0.99901	1.8	1.00099	0.2
.701	7.41374	748	7.48088	742	0.99903	1.8	1.00097	
.702	7.42122	749	7.48800	742	0.99905	1.8	1.00095	
.703	7.42872	750	7.49513	743	0.99907	1.8	1.00093	
.704	7.43622	750	7.50215	744	0.99908	1.8	1.00091	
2.705	7.44372	751	7.51000	744	0.99910	1.8	1.00089	0.2
.706	7.45121	752	7.51784	745	0.99911	1.8	1.00087	
.707	7.45870	753	7.52569	746	0.99913	1.8	1.00085	
.708	7.46620	753	7.53356	747	0.99915	1.8	1.00083	
.709	7.47369	754	7.54143	747	0.99917	1.8	1.00081	
2.710	7.48117	755	7.54931	748	0.99918	1.8	1.00079	0.2
.711	7.48866	756	7.55720	749	0.99920	1.8	1.00077	
.712	7.49614	756	7.56510	750	0.99922	1.7	1.00075	
.713	7.50365	757	7.57301	750	0.99924	1.7	1.00073	
.714	7.51112	758	7.58093	751	0.99925	1.7	1.00071	
2.715	7.51860	759	7.58884	752	0.99927	1.7	1.00069	0.2
.716	7.52609	759	7.59676	753	0.99929	1.7	1.00067	
.717	7.53359	760	7.60469	753	0.99931	1.7	1.00065	
.718	7.54109	761	7.61263	754	0.99933	1.7	1.00063	
.719	7.54860	762	7.62058	755	0.99934	1.7	1.00061	
2.720	7.55612	762	7.62853	756	0.99936	1.7	1.00059	0.2
.721	7.56364	763	7.63649	756	0.99938	1.7	1.00057	
.722	7.57117	764	7.64446	757	0.99940	1.7	1.00055	
.723	7.57870	765	7.65244	758	0.99942	1.7	1.00053	
.724	7.58624	765	7.66043	759	0.99943	1.7	1.00051	
2.725	7.59378	766	7.66843	760	0.99944	1.7	1.00049	0.2
.726	7.60133	767	7.67644	760	0.99946	1.7	1.00047	
.727	7.60889	768	7.68446	761	0.99948	1.7	1.00045	
.728	7.61645	768	7.69249	762	0.99950	1.7	1.00043	
.729	7.62401	769	7.69952	763	0.99951	1.7	1.00041	
2.730	7.63158	770	7.70756	763	0.99953	1.7	1.00039	0.2
.731	7.63915	771	7.71561	764	0.99955	1.7	1.00037	
.732	7.64673	771	7.72367	765	0.99957	1.7	1.00035	
.733	7.65431	772	7.73174	766	0.99958	1.7	1.00033	
.734	7.66190	773	7.73981	766	0.99960	1.7	1.00031	
2.735	7.66949	774	7.74789	767	0.99961	1.7	1.00029	0.2
.736	7.67709	774	7.75598	768	0.99963	1.7	1.00027	
.737	7.68469	775	7.76408	769	0.99965	1.7	1.00025	
.738	7.69230	775	7.77218	770	0.99966	1.7	1.00023	
.739	7.70000	777	7.78029	770	0.99968	1.7	1.00021	
2.740	7.70761	778	7.78840	771	0.99970	1.7	1.00019	0.2
.741	7.71523	778	7.79652	772	0.99971	1.7	1.00017	
.742	7.72285	779	7.80464	773	0.99973	1.6	1.00015	
.743	7.73048	780	7.81277	773	0.99975	1.6	1.00013	
.744	7.73811	781	7.82090	774	0.99976	1.6	1.00011	
2.745	7.74574	781	7.82903	775	0.99978	1.6	1.00009	0.2
.746	7.75338	782	7.83717	776	0.99979	1.6	1.00007	
.747	7.76102	783	7.84531	777	0.99981	1.6	1.00005	
.748	7.76867	784	7.85346	777	0.99983	1.6	1.00003	
.749	7.77632	785	7.86161	778	0.99984	1.6	1.00001	
2.750	7.78397	785	7.86976	779	0.99986	1.6	1.00000	0.2
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃	coth u	= F ₄ '
2.750	7.78933	785	7.85328	779	0.99185	1.6	1.0082	0.2
.751	7.79721	781	7.86107	780	0.99188	1.5	1.0082	
.752	7.80509	787	7.86887	781	0.99189	1.6	1.0083	
.753	7.81295	788	7.87668	781	0.99191	1.6	1.0083	
.754	7.82083	788	7.88450	782	0.99192	1.6	1.0083	
2.755	7.82872	789	7.89232	783	0.99194	1.6	1.0084	0.2
.756	7.83661	790	7.90016	784	0.99195	1.6	1.0084	
.757	7.84452	794	7.90800	784	0.99197	1.6	1.0084	
.758	7.85243	792	7.91585	785	0.99199	1.6	1.0084	
.759	7.86035	792	7.92370	786	0.99200	1.6	1.0084	
2.760	7.86828	793	7.93157	787	0.99202	1.6	1.0085	0.2
.761	7.87621	794	7.93944	788	0.99204	1.6	1.0085	
.762	7.88415	795	7.94732	788	0.99205	1.6	1.0085	
.763	7.89211	796	7.95521	789	0.99207	1.6	1.0085	
.764	7.90006	796	7.96310	790	0.99208	1.6	1.0085	
2.765	7.90803	797	7.97101	791	0.99210	1.6	1.0085	0.2
.766	7.91601	798	7.97892	792	0.99212	1.6	1.0079	
.767	7.92400	799	7.98684	792	0.99215	1.6	1.0079	
.768	7.93200	799	7.99477	793	0.99215	1.6	1.0079	
.769	7.94000	800	8.00270	794	0.99216	1.6	1.0079	
2.770	7.94800	801	8.01065	795	0.99218	1.6	1.0079	0.2
.771	7.95600	802	8.01860	796	0.99219	1.6	1.0079	
.772	7.96402	803	8.02656	796	0.99221	1.6	1.0079	
.773	7.97205	803	8.03453	797	0.99222	1.5	1.0078	
.774	7.98009	804	8.04250	798	0.99224	1.5	1.0078	
2.775	7.98814	805	8.05048	799	0.99226	1.5	1.0078	0.2
.776	7.99619	806	8.05848	800	0.99227	1.5	1.0078	
.777	8.00426	807	8.06648	800	0.99229	1.5	1.0078	
.778	8.01233	807	8.07449	801	0.99230	1.5	1.0078	
.779	8.02040	808	8.08251	802	0.99234	1.5	1.0077	
2.780	8.02849	809	8.09053	803	0.99233	1.5	1.0077	0.2
.781	8.03659	810	8.09857	804	0.99235	1.5	1.0077	
.782	8.04469	811	8.10660	804	0.99236	1.5	1.0077	
.783	8.05280	811	8.11465	805	0.99238	1.5	1.0077	
.784	8.06092	812	8.12271	805	0.99239	1.5	1.0077	
2.785	8.06904	813	8.13077	807	0.99241	1.5	1.0077	0.2
.786	8.07718	814	8.13885	808	0.99242	1.5	1.0076	
.787	8.08532	815	8.14693	809	0.99244	1.5	1.0076	
.788	8.09347	816	8.15502	809	0.99245	1.5	1.0076	
.789	8.10163	816	8.16311	810	0.99247	1.5	1.0076	
2.790	8.10980	817	8.17122	811	0.99248	1.5	1.0076	0.2
.791	8.11797	818	8.17933	812	0.99250	1.5	1.0076	
.792	8.12616	819	8.18746	813	0.99251	1.5	1.0075	
.793	8.13435	820	8.19559	813	0.99253	1.5	1.0075	
.794	8.14255	820	8.20373	814	0.99254	1.5	1.0075	
2.795	8.15076	821	8.21187	815	0.99256	1.5	1.0075	0.2
.796	8.15897	822	8.22003	816	0.99257	1.5	1.0075	0.2
.797	8.16720	823	8.22819	817	0.99259	1.5	1.0075	0.2
.798	8.17543	824	8.23636	818	0.99260	1.5	1.0075	0.2
.799	8.18367	824	8.24454	818	0.99262	1.5	1.0074	0.1
2.800	8.19192	825	8.25273	819	0.99263	1.5	1.0074	0.1
u	tan gd u	= F ₁ '	sec gd u	= F ₂ '	sin gd u	= F ₃ '	cos gd u	= F ₄ '

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '	
2.800	8.10102	815	8.25273	819	0.00253	1.5	1.0071	0.1	
.801	.20018	816	.20002	820	.00255	1.5	.0074		
.802	.20044	817	.20013	821	.00255	1.5	.0074		
.803	.21071	818	.27734	822	.00268	1.5	.0071		
.804	.22209	819	.28535	823	.00269	1.5	.0071		
2.805	8.23328	820	8.30379	823	0.00270	1.5	1.0073	0.1	
.806	.22158	820	.30003	824	.00272	1.5	.0073		
.807	.22082	821	.31027	825	.00273	1.4	.0073		
.808	.22820	822	.31851	826	.00273	1.4	.0073		
.809	.20653	823	.32070	827	.00270	1.4	.0073		
2.810	8.27286	824	8.33506	827	0.00276	1.4	1.0073	0.1	
.811	.28520	824	.34331	828	.00279	1.4	.0073		
.812	.20154	825	.35163	829	.00281	1.4	.0072		
.813	.20000	826	.35952	830	.00282	1.4	.0072		
.814	.30826	827	.36823	831	.00283	1.4	.0072		
2.815	8.31664	828	8.37654	832	0.00285	1.4	1.0072	0.1	
.816	.32502	828	.38486	833	.00285	1.4	.0072		
.817	.33311	829	.39319	833	.00288	1.4	.0072		
.818	.34180	830	.40153	834	.00289	1.4	.0072		
.819	.35021	831	.40987	835	.00291	1.4	.0071		
2.820	8.35852	832	8.41823	836	0.00292	1.4	1.0071	0.1	
.821	.35701	833	.42650	837	.00293	1.4	.0071		
.822	.37548	833	.43466	838	.00295	1.4	.0071		
.823	.38301	834	.44311	838	.00295	1.4	.0071		
.824	.39236	835	.45173	839	.00298	1.4	.0071		
2.825	8.40081	836	8.45013	840	0.00299	1.4	1.0071	0.1	
.826	.40028	837	.45853	841	.00300	1.4	.0070		
.827	.41776	838	.46705	842	.00302	1.4	.0070		
.828	.42621	840	.47557	843	.00303	1.4	.0070		
.829	.43473	840	.48380	843	.00305	1.4	.0070		
2.830	8.44322	850	8.50221	844	0.00306	1.4	1.0070	0.1	
.831	.45173	851	.51068	845	.00307	1.4	.0070		
.832	.46025	852	.51914	846	.00309	1.4	.0070		
.833	.46877	853	.52760	847	.00310	1.4	.0069		
.834	.47730	854	.53608	848	.00311	1.4	.0069		
2.835	8.48584	854	8.54495	849	0.00313	1.4	1.0069	0.1	
.836	.49430	855	.55305	849	.00314	1.4	.0069		
.837	.50285	856	.56153	850	.00316	1.4	.0069		
.838	.51151	857	.57000	851	.00317	1.4	.0069		
.839	.52009	858	.57857	852	.00318	1.4	.0069		
2.840	8.51857	859	8.58710	853	0.00320	1.4	1.0069	0.1	
.841	.51720	860	.58563	854	.00321	1.4	.0068		
.842	.54586	860	.60417	855	.00322	1.4	.0068		
.843	.55447	861	.61272	855	.00324	1.3	.0068		
.844	.56309	862	.62128	856	.00325	1.3	.0068		
2.845	8.57171	863	8.62085	857	0.00326	1.3	1.0068	0.1	
.846	.58025	864	.62942	858	.00326	1.3	.0068		
.847	.58890	865	.63791	859	.00329	1.3	.0068		
.848	.59764	866	.64650	860	.00330	1.3	.0067		
.849	.60630	866	.65520	861	.00332	1.3	.0067		
2.850	8.61497	867	8.67281	861	0.00333	1.3	1.0067	0.1	
u	tan gd u	= F ₁	sec gd u	= F ₂	sin gd u	= F ₃	cos gd u	= F ₄	

SMITHSONIAN TABLES

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

u	sinh u	= F'	cosh u	= F'	tanh u	= F'	coth u	= F'
2.850	8.61437	867	8.67281	861	0.99333	1.3	1.0067	0.1
.851	.62395	868	.68143	852	.00334	1.3	.0067	
.852	.63433	869	.69186	853	.00335	1.3	.0067	
.853	.64403	870	.70230	854	.00337	1.3	.0067	
.854	.65373	871	.71273	855	.00338	1.3	.0067	
2.855	8.69814	872	8.71600	856	0.99340	1.3	1.0066	0.1
.856	.66341	873	.72316	857	.00341	1.3	.0066	
.857	.67309	874	.73333	858	.00342	1.3	.0066	
.858	.68263	875	.74351	859	.00344	1.3	.0066	
.859	.69217	876	.75370	860	.00345	1.3	.0066	
2.860	8.74213	877	8.75930	861	0.99346	1.3	1.0066	0.1
.861	.70180	878	.76410	862	.00348	1.3	.0066	
.862	.71147	879	.77484	863	.00349	1.3	.0066	
.863	.72115	880	.78561	864	.00350	1.3	.0066	
.864	.73081	881	.79641	865	.00351	1.3	.0066	
2.865	8.79104	882	8.80822	866	0.99353	1.3	1.0065	0.1
.866	.74041	883	.80727	867	.00354	1.3	.0065	
.867	.75006	884	.81753	868	.00355	1.3	.0065	
.868	.75968	885	.82780	869	.00357	1.3	.0065	
.869	.76932	886	.83807	870	.00358	1.3	.0065	
2.870	8.79016	887	8.80636	871	0.99359	1.3	1.0065	0.1
.871	.77881	888	.84815	872	.00360	1.3	.0065	
.872	.78847	889	.85846	873	.00362	1.3	.0065	
.873	.79817	890	.86877	874	.00363	1.3	.0065	
.874	.80782	891	.87909	875	.00364	1.3	.0065	
2.875	8.83159	892	8.84902	876	0.99365	1.3	1.0064	0.1
.876	.81130	893	.88926	877	.00367	1.3	.0064	
.877	.82130	894	.89951	878	.00368	1.3	.0064	
.878	.83122	895	.90976	879	.00369	1.3	.0064	
.879	.84111	896	.92003	880	.00371	1.3	.0064	
2.880	8.87907	897	8.89520	881	0.99372	1.3	1.0063	0.1
.881	.85841	898	.93109	882	.00373	1.3	.0063	
.882	.86865	899	.94138	883	.00375	1.3	.0063	
.883	.87891	900	.95168	884	.00377	1.3	.0063	
.884	.88918	901	.96199	885	.00377	1.3	.0063	
2.885	8.92385	902	8.94027	886	0.99378	1.2	1.0063	0.1
.886	.90284	903	.97253	887	.00379	1.2	.0062	
.887	.91303	904	.98278	888	.00380	1.2	.0062	
.888	.92324	905	.99302	889	.00382	1.2	.0062	
.889	.93345	906	.10033	890	.00383	1.2	.0062	
2.890	8.96887	907	8.98544	891	0.99384	1.2	1.0062	0.1
.891	.95790	908	.10334	892	.00385	1.2	.0062	
.892	.96803	909	.10420	893	.00387	1.2	.0062	
.893	.97818	910	.10510	894	.00388	1.2	.0062	
.894	.98834	911	.10600	895	.00389	1.2	.0061	
2.895	9.01410	912	9.03040	896	0.99390	1.2	1.0061	0.1
.896	.99338	913	.10742	897	.00391	1.2	.0061	
.897	.10326	914	.10845	898	.00393	1.2	.0061	
.898	.10413	915	.10948	899	.00394	1.2	.0061	
.899	.10505	916	.11053	900	.00395	1.2	.0061	
2.900	9.05956	917	9.07458	901	0.99396	1.2	1.0061	0.1
u	tanh u	= F'	coth u	= F'	sinh u	= F'	cosh u	= F'

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
2.000	0.09085	911	9.11438	905	0.00905	1.2	1.0061	0.1
.001	.00085	912	.12305	907	.00100	1.2	.0001	
.002	.00781	913	.12372	908	.00109	1.2	.0001	
.003	.00895	914	.14180	909	.00400	1.2	.0001	
.004	.09000	915	.15000	910	.09401	1.2	.0001	
2.005	0.10521	916	9.16000	911	0.00402	1.2	1.0060	0.1
.006	.11441	917	.16911	911	.00463	1.2	.0001	
.007	.12390	918	.17823	912	.00465	1.2	.0001	
.008	.13477	919	.18735	913	.00465	1.2	.0001	
.009	.14195	920	.19649	914	.00467	1.2	.0001	
2.010	0.15136	921	0.20564	915	0.00468	1.2	1.0060	0.1
.011	.16037	922	.21479	916	.00469	1.2	.0059	
.012	.16939	923	.22390	917	.00471	1.2	.0059	
.013	.17882	924	.23313	918	.00472	1.2	.0059	
.014	.18806	925	.24232	919	.00473	1.2	.0059	
2.015	0.19730	926	0.25151	920	0.00474	1.2	1.0059	0.1
.016	.20695	927	.26071	921	.00475	1.2	.0059	
.017	.21583	928	.26998	922	.00476	1.2	.0059	
.018	.22510	929	.27914	923	.00478	1.2	.0059	
.019	.23438	930	.28837	924	.00479	1.2	.0058	
2.020	0.24358	931	0.29761	925	0.00480	1.2	1.0058	0.1
.021	.25268	932	.30685	926	.00481	1.2	.0058	
.022	.26220	933	.31612	927	.00482	1.2	.0058	
.023	.27161	934	.32538	928	.00483	1.1	.0058	
.024	.28094	935	.33466	929	.00485	1.1	.0058	
2.025	0.29038	936	0.34395	930	0.00486	1.1	1.0058	0.1
.026	.29973	937	.35324	931	.00487	1.1	.0058	
.027	.30909	938	.36254	932	.00488	1.1	.0058	
.028	.31835	939	.37185	933	.00489	1.1	.0057	
.029	.32773	940	.38118	934	.00490	1.1	.0057	
2.030	0.33712	941	0.39051	935	0.00531	1.1	1.0057	0.1
.031	.34651	942	.39986	936	.00533	1.1	.0057	
.032	.35592	943	.40921	937	.00534	1.1	.0057	
.033	.36533	944	.41857	938	.00535	1.1	.0057	
.034	.37475	945	.42794	939	.00536	1.1	.0057	
2.035	0.38410	946	0.43734	940	0.00537	1.1	1.0057	0.1
.036	.39353	947	.44671	941	.00538	1.1	.0057	
.037	.40308	948	.45610	942	.00539	1.1	.0056	
.038	.41254	949	.46551	943	.00540	1.1	.0056	
.039	.42201	950	.47493	944	.00541	1.1	.0056	
2.040	0.43149	951	0.48436	945	0.00542	1.1	1.0056	0.1
.041	.44098	952	.49379	946	.00544	1.1	.0056	
.042	.45048	953	.50324	947	.00545	1.1	.0056	
.043	.45999	954	.51269	948	.00546	1.1	.0056	
.044	.46950	955	.52216	949	.00547	1.1	.0056	
2.045	0.47903	956	0.53163	950	0.00548	1.1	1.0055	0.1
.046	.48857	957	.54112	951	.00549	1.1	.0055	
.047	.49811	958	.55061	952	.00550	1.1	.0055	
.048	.50769	959	.56011	953	.00551	1.1	.0055	
.049	.51723	960	.56962	954	.00552	1.1	.0055	
2.050	0.52681	961	0.57915	955	0.00554	1.1	1.0055	0.1
u	tan gd u	= F ₁ '	sec gd u	= F ₂ '	sin gd u	= F ₃ '	cos gd u	= F ₄ '

SMITHSONIAN TABLES

Natural Hyperbolic Functions.

x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$
0.050	0.52381	058	0.52015	053	0.00454	1.1	1.0055	0.1
0.051	0.52401	059	0.52035	054	0.00455	1.1	1.0055	
0.052	0.52421	060	0.52055	055	0.00456	1.1	1.0055	
0.053	0.52440	061	0.52077	056	0.00457	1.1	1.0055	
0.054	0.52460	062	0.52103	057	0.00458	1.1	1.0055	
0.055	0.52482	063	0.52130	057	0.00459	1.1	1.0054	0.1
0.056	0.52505	064	0.52158	058	0.00460	1.1	1.0054	
0.057	0.52528	065	0.52187	059	0.00461	1.1	1.0054	
0.058	0.52552	066	0.52217	060	0.00462	1.1	1.0054	
0.059	0.52576	067	0.52248	061	0.00463	1.1	1.0054	
0.060	0.52601	067	0.52280	062	0.00464	1.1	1.0054	0.1
0.061	0.52626	068	0.52312	063	0.00465	1.1	1.0054	
0.062	0.52651	069	0.52345	064	0.00466	1.1	1.0054	
0.063	0.52676	070	0.52378	065	0.00468	1.1	1.0054	
0.064	0.52702	071	0.52412	066	0.00469	1.1	1.0053	
0.065	0.52728	072	0.52447	067	0.00470	1.1	1.0053	0.1
0.066	0.52754	073	0.52482	068	0.00471	1.1	1.0053	
0.067	0.52780	074	0.52518	069	0.00472	1.1	1.0053	
0.068	0.52807	075	0.52554	070	0.00473	1.1	1.0053	
0.069	0.52834	076	0.52591	071	0.00474	1.0	1.0053	
0.070	0.52861	077	0.52628	072	0.00475	1.0	1.0053	0.1
0.071	0.52889	078	0.52666	073	0.00476	1.0	1.0053	
0.072	0.52917	079	0.52704	074	0.00477	1.0	1.0053	
0.073	0.52945	080	0.52743	075	0.00478	1.0	1.0052	
0.074	0.52974	081	0.52782	076	0.00479	1.0	1.0052	
0.075	0.53003	082	0.52821	077	0.00480	1.0	1.0052	0.1
0.076	0.53032	083	0.52861	078	0.00481	1.0	1.0052	
0.077	0.53061	084	0.52901	079	0.00482	1.0	1.0052	
0.078	0.53091	085	0.52941	080	0.00483	1.0	1.0052	
0.079	0.53120	086	0.52982	081	0.00484	1.0	1.0052	
0.080	0.53150	087	0.53023	082	0.00485	1.0	1.0052	0.1
0.081	0.53180	088	0.53064	083	0.00486	1.0	1.0052	
0.082	0.53210	089	0.53105	084	0.00487	1.0	1.0052	
0.083	0.53240	090	0.53146	085	0.00488	1.0	1.0051	
0.084	0.53270	091	0.53187	086	0.00489	1.0	1.0051	
0.085	0.53300	092	0.53228	087	0.00490	1.0	1.0051	0.1
0.086	0.53330	093	0.53269	088	0.00491	1.0	1.0051	
0.087	0.53360	094	0.53310	089	0.00492	1.0	1.0051	
0.088	0.53390	095	0.53351	090	0.00493	1.0	1.0051	
0.089	0.53420	096	0.53392	091	0.00494	1.0	1.0051	
0.090	0.53450	097	0.53433	092	0.00495	1.0	1.0051	0.1
0.091	0.53480	098	0.53474	093	0.00496	1.0	1.0051	
0.092	0.53510	099	0.53515	094	0.00497	1.0	1.0051	
0.093	0.53540	100	0.53556	095	0.00498	1.0	1.0050	
0.094	0.53570	101	0.53597	096	0.00499	1.0	1.0050	
0.095	0.53600	102	0.53638	097	0.00500	1.0	1.0050	0.1
0.096	0.53630	103	0.53679	098	0.00501	1.0	1.0050	
0.097	0.53660	104	0.53720	099	0.00502	1.0	1.0050	
0.098	0.53690	105	0.53761	100	0.00503	1.0	1.0050	
0.099	0.53720	106	0.53802	101	0.00504	1.0	1.0050	
0.100	0.53750	107	0.53843	102	0.00505	1.0	1.0050	0.1
1.000	10.01707	1007	10.01706	1002	0.00505	1.0	1.0050	
x	$\sinh x$	$= F_1'$	$\cosh x$	$= F_2'$	$\tanh x$	$= F_3'$	$\coth x$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\sinh u$	$\cosh u$	$\sinh u$	$\cosh u$	$\sinh u$	$\cosh u$
3.00	10.0179	1007	10.0677	1002	0.99305	0.99	1.0090	1.00
.01	10.1191	1017	10.1684	1012	0.99315	0.97	1.0092	1.01
.02	10.2212	1027	10.2700	1022	0.99325	0.95	1.0094	1.02
.03	10.3245	1037	10.3738	1032	0.99334	0.93	1.0097	1.03
.04	10.4287	1048	10.4795	1043	0.99343	0.91	1.0100	1.04
3.05	10.5340	1058	10.5841	1053	0.99352	0.89	1.0103	1.05
.06	10.6393	1069	10.6892	1064	0.99361	0.88	1.0105	1.06
.07	10.7457	1079	10.7952	1075	0.99370	0.86	1.0108	1.07
.08	10.8522	1090	10.9022	1085	0.99379	0.84	1.0111	1.08
.09	10.9598	1101	11.0093	1097	0.99388	0.82	1.0114	1.09
3.10	11.0675	1112	11.1175	1108	0.99397	0.81	1.0117	1.10
.11	11.1752	1123	11.2248	1119	0.99404	0.79	1.0120	1.11
.12	11.2831	1135	11.3323	1130	0.99411	0.78	1.0123	1.12
.13	11.3911	1146	11.4408	1141	0.99418	0.76	1.0126	1.13
.14	11.5001	1157	11.5495	1153	0.99426	0.75	1.0129	1.14
3.15	11.6091	1169	11.6585	1165	0.99433	0.73	1.0132	1.15
.16	11.7181	1181	11.7669	1176	0.99441	0.72	1.0135	1.16
.17	11.8272	1192	11.8757	1188	0.99448	0.70	1.0138	1.17
.18	11.9363	1204	11.9845	1199	0.99455	0.69	1.0141	1.18
.19	12.0455	1216	12.0935	1212	0.99462	0.68	1.0144	1.19
3.20	12.2450	1229	12.2895	1225	0.99468	0.66	1.0147	1.20
.21	12.3541	1241	12.4007	1237	0.99475	0.65	1.0151	1.21
.22	12.4631	1253	12.5100	1249	0.99481	0.64	1.0154	1.22
.23	12.5722	1266	12.6195	1262	0.99488	0.63	1.0157	1.23
.24	12.6813	1279	12.7284	1275	0.99494	0.61	1.0161	1.24
3.25	12.8928	1291	12.9366	1288	0.99500	0.60	1.0165	1.25
.26	13.0035	1304	13.0470	1299	0.99506	0.59	1.0169	1.26
.27	13.1141	1317	13.1572	1314	0.99512	0.58	1.0173	1.27
.28	13.2248	1331	13.2675	1327	0.99517	0.56	1.0177	1.28
.29	13.3355	1344	13.3780	1340	0.99523	0.55	1.0181	1.29
3.30	13.5370	1357	13.5798	1354	0.99528	0.54	1.0185	1.30
.31	13.6483	1371	13.6908	1369	0.99534	0.53	1.0189	1.31
.32	13.7596	1385	13.8018	1381	0.99539	0.52	1.0193	1.32
.33	13.8709	1399	13.9128	1395	0.99544	0.51	1.0197	1.33
.34	13.9822	1413	14.0237	1409	0.99549	0.50	1.0201	1.34
3.35	14.2338	1427	14.2750	1423	0.99554	0.49	1.0205	1.35
.36	14.3451	1441	14.3860	1438	0.99559	0.48	1.0209	1.36
.37	14.4564	1456	14.4969	1452	0.99564	0.47	1.0213	1.37
.38	14.5677	1470	14.6080	1467	0.99568	0.46	1.0217	1.38
.39	14.6790	1485	14.7189	1482	0.99573	0.45	1.0221	1.39
3.40	14.9305	1500	14.9707	1497	0.99577	0.44	1.0225	1.40
.41	15.0418	1515	15.0818	1512	0.99582	0.43	1.0229	1.41
.42	15.1531	1530	15.1928	1527	0.99586	0.42	1.0233	1.42
.43	15.2644	1545	15.3035	1542	0.99590	0.41	1.0237	1.43
.44	15.3757	1560	15.4125	1558	0.99595	0.41	1.0241	1.44
3.45	15.7313	1577	15.7661	1573	0.99599	0.40	1.0245	1.45
.46	15.8426	1592	15.8812	1589	0.99603	0.39	1.0249	1.46
.47	15.9539	1608	15.9919	1605	0.99607	0.39	1.0253	1.47
.48	16.0652	1625	16.1025	1621	0.99611	0.38	1.0257	1.48
.49	16.1765	1641	16.2125	1638	0.99615	0.37	1.0261	1.49
3.50	16.5326	1657	16.5728	1654	0.99618	0.36	1.0265	1.50
u	$\sinh u$	$\cosh u$	$\sinh u$	$\cosh u$	$\sinh u$	$\cosh u$	$\sinh u$	$\cosh u$

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃	coth u	= F ₄ '
3.50	16.52330	1657	16.5728	1654	0.99868	3.6	1.0018	0.1
.51	16.70042	1674	16.7391	1671	0.99871	3.6	.0018	0.4
.52	16.87774	1691	16.9070	1688	0.99875	3.5	.0018	0.4
.53	17.05423	1708	17.0740	1705	0.99878	3.4	.0017	0.3
.54	17.23093	1725	17.2490	1722	0.99882	3.4	.0017	0.3
3.55	17.40743	1742	17.4240	1739	0.99885	3.3	1.0017	0.3
.56	17.58394	1760	17.5998	1757	0.99888	3.2	.0016	0.3
.57	17.76042	1777	17.7741	1774	0.99892	3.2	.0016	0.3
.58	17.93688	1795	17.9507	1792	0.99895	3.1	.0016	0.3
.59	18.11334	1813	18.1268	1810	0.99898	3.0	.0015	0.3
3.60	18.28983	1831	18.3118	1828	0.99901	3.0	1.0015	0.3
.61	18.46635	1850	18.4866	1847	0.99904	2.9	.0015	0.3
.62	18.64281	1868	18.6613	1865	0.99907	2.9	.0014	0.3
.63	18.81924	1887	18.8367	1884	0.99910	2.8	.0014	0.3
.64	19.00000	1906	19.0160	1903	0.99913	2.8	.0014	0.3
3.65	19.17543	1925	19.1903	1922	0.99916	2.7	1.0014	0.3
.66	19.35088	1944	19.3643	1941	0.99918	2.6	.0013	0.3
.67	19.52632	1963	19.5387	1960	0.99920	2.6	.0013	0.3
.68	19.70176	1982	19.7138	1979	0.99923	2.5	.0013	0.3
.69	19.87720	2001	19.8889	1998	0.99925	2.5	.0012	0.2
3.70	20.05263	2020	20.0630	2017	0.99928	2.4	1.0012	0.2
.71	20.22808	2039	20.2381	2036	0.99930	2.4	.0012	0.2
.72	20.40352	2058	20.4133	2055	0.99933	2.3	.0012	0.2
.73	20.57896	2077	20.5886	2074	0.99935	2.3	.0012	0.2
.74	20.75440	2096	20.7639	2093	0.99937	2.3	.0011	0.2
3.75	20.92983	2115	20.9393	2112	0.99939	2.2	1.0011	0.2
.76	21.10528	2134	21.1146	2131	0.99942	2.2	.0011	0.2
.77	21.28072	2153	21.2899	2150	0.99944	2.1	.0011	0.2
.78	21.45616	2172	21.4652	2169	0.99946	2.1	.0010	0.2
.79	21.63160	2191	21.6405	2188	0.99948	2.0	.0010	0.2
3.80	21.80703	2210	21.8168	2207	0.99950	2.0	1.0010	0.2
.81	21.98248	2229	21.9913	2226	0.99952	2.0	.0010	0.2
.82	22.15792	2248	22.1666	2245	0.99954	1.9	.0010	0.2
.83	22.33336	2267	22.3420	2264	0.99956	1.9	.0009	0.2
.84	22.50880	2286	22.5173	2283	0.99958	1.8	.0009	0.2
3.85	22.68423	2305	22.6934	2302	0.99960	1.8	1.0009	0.2
.86	22.85968	2324	22.8684	2321	0.99961	1.8	.0009	0.2
.87	23.03512	2343	23.0436	2340	0.99963	1.7	.0009	0.2
.88	23.21056	2362	23.2189	2359	0.99965	1.7	.0009	0.2
.89	23.38600	2381	23.3943	2378	0.99966	1.7	.0008	0.2
3.90	23.56143	2400	23.5697	2397	0.99968	1.6	1.0008	0.2
.91	23.73688	2419	23.7450	2416	0.99969	1.6	.0008	0.2
.92	23.91232	2438	23.9204	2435	0.99971	1.6	.0008	0.2
.93	24.08776	2457	24.0957	2454	0.99972	1.5	.0008	0.2
.94	24.26320	2476	24.2711	2473	0.99974	1.5	.0008	0.2
3.95	24.43863	2495	24.4466	2492	0.99975	1.5	1.0007	0.1
.96	24.61408	2514	24.6219	2511	0.99977	1.5	.0007	0.1
.97	24.78952	2533	24.7973	2530	0.99978	1.4	.0007	0.1
.98	24.96496	2552	24.9727	2549	0.99980	1.4	.0007	0.1
.99	25.14040	2571	25.1481	2568	0.99981	1.4	.0007	0.1
4.00	25.31583	2590	25.3236	2587	0.99982	1.3	1.0007	0.1
u	tan gd u	= F ₅ '	sec gd u	= F ₆ '	sin gd u	= F ₇ '	csc gd u	= F ₈ '

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
4.00	27.2890	2731	27.3012	2720	0.99933	1.3	1.00007	0.1
.01	27.5044	2758	27.5165	2750	0.99933	1.3	1.00007	
.02	27.8130	2780	27.8250	2783	0.99933	1.3	1.00006	
.03	28.1240	2814	28.1360	2812	0.99933	1.3	1.00006	
.04	28.4364	2842	28.4484	2840	0.99933	1.2	1.00006	
4.05	28.6900	2871	28.7021	2861	0.99933	1.2	1.00006	0.1
.06	28.9958	2900	28.9978	2898	0.99933	1.2	1.00006	
.07	29.2999	2920	29.3020	2917	0.99933	1.2	1.00006	
.08	29.6013	2958	29.6042	2950	0.99933	1.1	1.00006	
.09	29.8600	2988	29.8629	2986	0.99933	1.1	1.00006	
4.10	30.1669	3018	30.1781	3016	0.99933	1.1	1.00005	0.1
.11	30.4752	3048	30.4864	3047	0.99933	1.1	1.00005	
.12	30.7775	3079	30.7887	3077	0.99933	1.1	1.00005	
.13	31.0809	3110	31.0920	3108	0.99933	1.0	1.00005	
.14	31.3854	3141	31.3964	3139	0.99933	1.0	1.00005	
4.15	31.7001	3172	31.7120	3171	0.99933	1.0	1.00005	0.1
.16	32.0080	3203	32.0199	3201	0.99933	1.0	1.00005	
.17	32.3180	3237	32.3298	3235	0.99933	1.0	1.00005	
.18	32.6251	3260	32.6369	3258	0.99933	0.9	1.00005	
.19	32.9328	3294	32.9445	3292	0.99933	0.9	1.00005	
4.20	33.2357	3335	33.2475	3334	0.99933	0.9	1.00004	0.1
.21	33.5408	3369	33.5525	3367	0.99933	0.9	1.00004	
.22	33.8460	3402	33.8576	3401	0.99933	0.9	1.00004	
.23	34.1513	3437	34.1628	3435	0.99933	0.8	1.00004	
.24	34.4567	3471	34.4681	3470	0.99933	0.8	1.00004	
4.25	35.0196	3506	35.0308	3505	0.99933	0.8	1.00004	0.1
.26	35.3270	3541	35.3381	3540	0.99933	0.8	1.00004	
.27	35.6358	3577	35.6468	3575	0.99933	0.8	1.00004	
.28	35.9433	3613	35.9542	3611	0.99933	0.8	1.00004	
.29	36.2504	3649	36.2612	3648	0.99933	0.8	1.00004	
4.30	36.8131	3685	36.8240	3684	0.99933	0.7	1.00004	0.1
.31	37.1215	3723	37.1323	3721	0.99933	0.7	1.00004	
.32	37.4307	3760	37.4414	3759	0.99933	0.7	1.00004	
.33	37.7398	3798	37.7505	3797	0.99933	0.7	1.00004	
.34	38.0487	3836	38.0593	3835	0.99933	0.7	1.00004	
4.35	38.7328	3875	38.7437	3873	0.99933	0.7	1.00003	0.1
.36	39.0422	3913	39.0530	3912	0.99933	0.7	1.00003	
.37	39.3515	3951	39.3621	3950	0.99933	0.6	1.00003	
.38	39.6618	3989	39.6723	3988	0.99933	0.6	1.00003	
.39	40.1140	4033	40.1244	4031	0.99933	0.6	1.00003	
4.40	40.7303	4071	40.7406	4072	0.99933	0.6	1.00003	0.1
.41	41.1387	4114	41.1488	4113	0.99933	0.6	1.00003	
.42	41.5471	4155	41.5571	4154	0.99933	0.6	1.00003	
.43	41.9556	4197	41.9655	4196	0.99933	0.6	1.00003	
.44	42.3640	4239	42.3738	4238	0.99933	0.6	1.00003	
4.45	42.8676	4282	42.8773	4281	0.99933	0.5	1.00003	0.1
.46	43.2760	4325	43.2855	4324	0.99933	0.5	1.00003	
.47	43.6843	4368	43.6936	4367	0.99933	0.5	1.00003	
.48	44.1117	4412	44.1209	4411	0.99933	0.5	1.00003	
.49	44.5551	4457	44.5641	4456	0.99933	0.5	1.00003	
4.50	45.0030	4501	45.0124	4500	0.99933	0.5	1.00002	0.0
u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$

Natural Hyperbolic Functions.

u	$\sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\tanh u$	$= F_3'$	$\coth u$	$= F_4'$
4.50	45.00399	4501	45.01411	4506	0.99975	0.5	1.0002	0.0
.51	45.15551	4517	45.16661	4516	.99976	0.5	.0002	
.52	45.30712	4532	45.31822	4531	.99976	0.5	.0002	
.53	45.45879	4548	45.46989	4547	.99977	0.5	.0002	
.54	45.61041	4563	45.62151	4562	.99977	0.5	.0002	
4.55	45.76199	4574	45.77315	4573	0.99978	0.4	1.0002	0.0
.56	45.91365	4580	45.92479	4579	.99978	0.4	.0002	
.57	46.06529	4588	46.07642	4587	.99979	0.4	.0002	
.58	46.21691	4590	46.22803	4589	.99979	0.4	.0002	
.59	46.36851	4595	46.37963	4594	.99979	0.4	.0002	
4.60	46.51991	4597	46.53112	4597	0.99980	0.4	1.0002	0.0
.61	46.67151	5005	46.68261	5004	.99980	0.4	.0002	
.62	46.82312	5073	46.83422	5071	.99981	0.4	.0002	
.63	46.97472	5126	46.98582	5125	.99981	0.4	.0002	
.64	47.12632	5178	47.13742	5177	.99981	0.4	.0002	
4.65	47.27792	5230	47.28902	5229	0.99982	0.4	1.0002	0.0
.66	47.42952	5282	47.44062	5281	.99982	0.4	.0002	
.67	47.58112	5335	47.59222	5333	.99982	0.4	.0002	
.68	47.73272	5386	47.74382	5384	.99983	0.3	.0002	
.69	47.88432	5438	47.89542	5437	.99983	0.3	.0002	
4.70	48.03592	5490	48.04702	5489	0.99983	0.3	1.0002	0.0
.71	48.18752	5541	48.19862	5540	.99984	0.3	.0002	
.72	48.33912	5593	48.35022	5592	.99984	0.3	.0002	
.73	48.49072	5645	48.50182	5644	.99984	0.3	.0002	
.74	48.64232	5697	48.65342	5696	.99985	0.3	.0002	
4.75	48.79392	5748	48.80502	5747	0.99985	0.3	1.0002	0.0
.76	48.94552	5799	48.95662	5798	.99985	0.3	.0001	
.77	49.09712	5850	49.10822	5849	.99985	0.3	.0001	
.78	49.24872	5901	49.25982	5900	.99985	0.3	.0001	
.79	49.40032	5952	49.41142	5951	.99985	0.3	.0001	
4.80	49.55192	6003	49.56302	6002	0.99985	0.3	1.0002	0.0
.81	49.70352	6054	49.71462	6053	.99985	0.3	.0001	
.82	49.85512	6105	49.86622	6104	.99985	0.3	.0001	
.83	49.90672	6156	49.91782	6155	.99985	0.3	.0001	
.84	50.05832	6207	50.06942	6206	.99985	0.3	.0001	
4.85	50.20992	6258	50.22102	6257	0.99988	0.2	1.0001	0.0
.86	50.36152	6309	50.37262	6308	.99988	0.2	.0001	
.87	50.51312	6360	50.52422	6359	.99988	0.2	.0001	
.88	50.66472	6411	50.67582	6410	.99988	0.2	.0001	
.89	50.81632	6462	50.82742	6461	.99988	0.2	.0001	
4.90	50.96792	6513	50.97902	6512	0.99989	0.2	1.0001	0.0
.91	51.11952	6564	51.13062	6563	.99989	0.2	.0001	
.92	51.27112	6615	51.28222	6614	.99989	0.2	.0001	
.93	51.42272	6666	51.43382	6665	.99989	0.2	.0001	
.94	51.57432	6717	51.58542	6716	.99989	0.2	.0001	
4.95	51.72592	6768	51.73702	6767	0.99990	0.2	1.0001	0.0
.96	51.87752	6819	51.88862	6818	.99990	0.2	.0001	
.97	52.02912	6870	52.04022	6869	.99990	0.2	.0001	
.98	52.18072	6921	52.19182	6920	.99990	0.2	.0001	
.99	52.33232	6972	52.34342	6971	.99990	0.2	.0001	
5.00	52.48392	7023	52.49502	7022	0.99991	0.2	1.0001	0.0
u	$\tan gd u$	$= F_5'$	$\sec gd u$	$= F_6'$	$\sin gd u$	$= F_7'$	$\csc gd u$	$= F_8'$

Natural Hyperbolic Functions.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$
5.00	74.20342	74.21	24.38891	24.80	0.99999	0.2	1.00001	0.0
.01	74.41603	74.60	24.45557	24.05	.99999	0.2	.00001	
.02	74.70573	75.21	24.52000	23.50	.99999	0.2	.00001	
.03	75.07342	75.82	24.58248	23.05	.99999	0.2	.00001	
.04	75.52108	77.23	24.64342	22.54	.99999	0.2	.00001	
5.05	76.05060	78.61	24.70344	22.01	0.99999	0.2	1.00001	0.0
.06	76.66413	79.96	24.76281	21.50	.99999	0.2	.00001	
.07	77.36330	81.39	24.82103	21.01	.99999	0.2	.00001	
.08	78.14969	82.90	24.87851	20.54	.99999	0.2	.00001	
.09	79.02508	84.48	24.93562	20.10	.99999	0.2	.00001	
5.10	80.00000	86.10	25.00000	20.00	0.99999	0.1	1.00001	0.0
.11	81.07508	87.78	25.06382	19.55	.99999	0.1	.00001	
.12	82.25073	89.52	25.12707	19.10	.99999	0.1	.00001	
.13	83.52696	91.33	25.18985	18.65	.99999	0.1	.00001	
.14	84.90378	93.21	25.25228	18.21	.99999	0.1	.00001	
5.15	86.38120	95.22	25.31448	17.78	0.99999	0.1	1.00001	0.0
.16	87.95931	97.36	25.37648	17.35	.99999	0.1	.00001	
.17	89.63802	99.63	25.43831	16.93	.99999	0.1	.00001	
.18	91.41833	102.03	25.49998	16.51	.99999	0.1	.00001	
.19	93.30124	104.57	25.56161	16.10	.99999	0.1	.00001	
5.20	95.28776	107.25	25.62331	15.70	0.99999	0.1	1.00001	0.0
.21	97.37889	110.07	25.68518	15.30	.99999	0.1	.00001	
.22	99.57564	113.02	25.74733	14.90	.99999	0.1	.00001	
.23	101.87901	116.11	25.80986	14.51	.99999	0.1	.00001	
.24	104.29000	119.34	25.87278	14.13	.99999	0.1	.00001	
5.25	106.80971	122.71	25.93609	13.76	0.99999	0.1	1.00001	0.0
.26	109.43824	126.23	25.99979	13.40	.99999	0.1	.00001	
.27	112.17669	129.90	26.06398	13.05	.99999	0.1	.00001	
.28	115.02506	133.72	26.12866	12.71	.99999	0.1	.00001	
.29	117.98446	137.69	26.19384	12.38	.99999	0.1	.00001	
5.30	121.05589	141.82	26.25952	12.06	0.99999	0.1	1.00001	0.0
.31	124.24036	146.11	26.32570	11.75	.99999	0.1	.00001	
.32	127.53889	150.56	26.39248	11.45	.99999	0.1	.00001	
.33	130.95148	155.18	26.45986	11.16	.99999	0.1	.00001	
.34	134.47913	160.00	26.52784	10.88	.99999	0.1	.00001	
5.35	138.12284	165.03	26.59642	10.61	0.99999	0.1	1.00001	0.0
.36	141.88361	170.28	26.66560	10.35	.99999	0.1	.00001	
.37	145.76144	175.75	26.73538	10.10	.99999	0.1	.00001	
.38	149.75733	181.45	26.80576	9.86	.99999	0.1	.00001	
.39	153.87228	187.39	26.87674	9.63	.99999	0.1	.00001	
5.40	158.10730	193.58	26.94832	9.41	0.99999	0.1	1.00001	0.0
.41	162.46339	199.93	27.02050	9.20	.99999	0.1	.00001	
.42	166.94056	206.44	27.09338	8.99	.99999	0.1	.00001	
.43	171.53881	213.12	27.16696	8.79	.99999	0.1	.00001	
.44	176.25814	220.00	27.24124	8.59	.99999	0.1	.00001	
5.45	181.09856	227.18	27.31622	8.40	0.99999	0.1	1.00001	0.0
.46	186.06007	234.67	27.39190	8.21	.99999	0.1	.00001	
.47	191.14268	242.48	27.46828	8.03	.99999	0.1	.00001	
.48	196.34639	250.62	27.54536	7.85	.99999	0.1	.00001	
.49	201.67120	259.10	27.62314	7.68	.99999	0.1	.00001	
5.50	207.11811	267.93	27.70162	7.51	0.99999	0.1	1.00001	0.0
u	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$	$\sinh u$	$\cosh u$	$\tanh u$	$\coth u$

Natural Hyperbolic Functions.

u	sinh u	= F ₁ '	cosh u	= F ₂ '	tanh u	= F ₃ '	coth u	= F ₄ '
5.50	122.3430	12235	122.3480	12234	0.99997	0.1	1.0000	0.0
.51	123.5745	12356	123.5795	12357	0.99997	0.1	1.0000	
.52	124.8155	12482	124.8205	12482	0.99997	0.1	1.0000	
.53	126.0600	12607	126.0650	12607	0.99997	0.1	1.0000	
.54	127.3130	12734	127.3180	12734	0.99997	0.1	1.0000	
5.55	128.6168	12862	128.6217	12862	0.99997	0.1	1.0000	0.0
.56	129.9295	12991	129.9345	12991	0.99997	0.1	1.0000	
.57	131.2515	13122	131.2565	13122	0.99997	0.1	1.0000	
.58	132.5829	13253	132.5877	13253	0.99997	0.1	1.0000	
.59	133.9239	13389	133.9287	13389	0.99997	0.1	1.0000	
5.60	135.2744	13522	135.2793	13521	0.99997	0.1	1.0000	0.0
.61	136.5903	13657	136.5953	13657	0.99997	0.1	1.0000	
.62	137.9139	13793	137.9189	13793	0.99997	0.1	1.0000	
.63	139.2453	13933	139.2503	13933	0.99997	0.1	1.0000	
.64	140.5856	14073	140.5906	14073	0.99997	0.1	1.0000	
5.65	142.1440	14215	142.1475	14214	0.99998	0.0	1.0000	0.0
.66	143.3746	14358	143.3791	14357	0.99998	0.0	1.0000	
.67	144.6153	14492	144.6198	14492	0.99998	0.0	1.0000	
.68	145.8679	14538	145.8724	14537	0.99998	0.0	1.0000	
.69	147.1323	14798	147.1368	14795	0.99998	0.0	1.0000	
5.70	149.4330	14944	149.4374	14943	0.99998	0.0	1.0000	0.0
.71	150.7503	15091	150.7547	15091	0.99998	0.0	1.0000	
.72	152.0768	15245	152.0811	15245	0.99998	0.0	1.0000	
.73	153.4130	15390	153.4173	15388	0.99998	0.0	1.0000	
.74	154.7596	15553	154.7638	15553	0.99998	0.0	1.0000	
5.75	157.0638	15710	157.0680	15709	0.99998	0.0	1.0000	0.0
.76	158.3745	15858	158.3787	15857	0.99998	0.0	1.0000	
.77	159.6923	15997	159.6965	15997	0.99998	0.0	1.0000	
.78	161.0181	16189	161.0223	16188	0.99998	0.0	1.0000	
.79	162.3509	16351	162.3551	16350	0.99998	0.0	1.0000	
5.80	163.6913	16515	163.6955	16515	0.99998	0.0	1.0000	0.0
.81	165.0441	16681	165.0483	16681	0.99998	0.0	1.0000	
.82	166.4015	16849	166.4057	16848	0.99998	0.0	1.0000	
.83	167.7629	17018	167.7671	17018	0.99998	0.0	1.0000	
.84	171.1882	17189	171.1924	17189	0.99998	0.0	1.0000	
5.85	173.6198	17362	173.6240	17362	0.99998	0.0	1.0000	0.0
.86	175.0606	17536	175.0648	17536	0.99998	0.0	1.0000	
.87	176.5131	17713	176.5173	17712	0.99998	0.0	1.0000	
.88	177.9763	17891	177.9805	17890	0.99998	0.0	1.0000	
.89	180.7013	18070	180.7055	18070	0.99998	0.0	1.0000	
5.90	182.5174	18252	182.5216	18252	0.99998	0.0	1.0000	0.0
.91	184.3357	18435	184.3399	18435	0.99998	0.0	1.0000	
.92	186.1565	18621	186.1607	18620	0.99998	0.0	1.0000	
.93	188.0789	18808	188.0831	18808	0.99998	0.0	1.0000	
.94	189.9961	18997	189.9999	18997	0.99998	0.0	1.0000	
5.95	191.8754	19188	191.8796	19188	0.99998	0.0	1.0000	0.0
.96	193.8038	19381	193.8080	19380	0.99998	0.0	1.0000	
.97	195.7550	19575	195.7592	19575	0.99998	0.0	1.0000	
.98	197.7189	19772	197.7231	19772	0.99998	0.0	1.0000	
.99	199.7061	19971	199.7103	19971	0.99998	0.0	1.0000	
6.00	201.7132	20172	201.7174	20171	0.99999	0.0	1.0000	0.0
u	tanh u	= F ₁ '	coth u	= F ₂ '	sinh u	= F ₃ '	cosh u	= F ₄ '

TABLE III

NATURAL, AND LOGARITHMIC CIRCULAR FUNCTIONS

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\cot \alpha$	$\sec \alpha$	$\csc \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	$\log \tan \alpha$	$\log \cot \alpha$	$\log \sec \alpha$	$\log \csc \alpha$
0.0000	0.00000	1.00000	0.00000	∞	1.00000	∞	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0001	0.00010	0.99990	0.00010	10.00000	1.00000	1.00000	9.00000	9.99990	0.00000	0.00000	0.00000	0.00000
0.0002	0.00020	0.99980	0.00020	5.00000	1.00000	1.00000	9.00000	9.99980	0.00000	0.00000	0.00000	0.00000
0.0003	0.00030	0.99970	0.00030	3.33333	1.00000	1.00000	9.00000	9.99970	0.00000	0.00000	0.00000	0.00000
0.0004	0.00040	0.99960	0.00040	2.50000	1.00000	1.00000	9.00000	9.99960	0.00000	0.00000	0.00000	0.00000
0.0005	0.00050	0.99950	0.00050	2.00000	1.00000	1.00000	9.00000	9.99950	0.00000	0.00000	0.00000	0.00000
0.0006	0.00060	0.99940	0.00060	1.66667	1.00000	1.00000	9.00000	9.99940	0.00000	0.00000	0.00000	0.00000
0.0007	0.00070	0.99930	0.00070	1.42857	1.00000	1.00000	9.00000	9.99930	0.00000	0.00000	0.00000	0.00000
0.0008	0.00080	0.99920	0.00080	1.25000	1.00000	1.00000	9.00000	9.99920	0.00000	0.00000	0.00000	0.00000
0.0009	0.00090	0.99910	0.00090	1.11111	1.00000	1.00000	9.00000	9.99910	0.00000	0.00000	0.00000	0.00000
0.0010	0.00100	0.99900	0.00100	1.00000	1.00000	1.00000	9.00000	9.99900	0.00000	0.00000	0.00000	0.00000
0.0011	0.00110	0.99890	0.00110	0.90909	1.00000	1.00000	9.00000	9.99890	0.00000	0.00000	0.00000	0.00000
0.0012	0.00120	0.99880	0.00120	0.83333	1.00000	1.00000	9.00000	9.99880	0.00000	0.00000	0.00000	0.00000
0.0013	0.00130	0.99870	0.00130	0.76923	1.00000	1.00000	9.00000	9.99870	0.00000	0.00000	0.00000	0.00000
0.0014	0.00140	0.99860	0.00140	0.71429	1.00000	1.00000	9.00000	9.99860	0.00000	0.00000	0.00000	0.00000
0.0015	0.00150	0.99850	0.00150	0.66667	1.00000	1.00000	9.00000	9.99850	0.00000	0.00000	0.00000	0.00000
0.0016	0.00160	0.99840	0.00160	0.62500	1.00000	1.00000	9.00000	9.99840	0.00000	0.00000	0.00000	0.00000
0.0017	0.00170	0.99830	0.00170	0.58824	1.00000	1.00000	9.00000	9.99830	0.00000	0.00000	0.00000	0.00000
0.0018	0.00180	0.99820	0.00180	0.55556	1.00000	1.00000	9.00000	9.99820	0.00000	0.00000	0.00000	0.00000
0.0019	0.00190	0.99810	0.00190	0.52632	1.00000	1.00000	9.00000	9.99810	0.00000	0.00000	0.00000	0.00000
0.0020	0.00200	0.99800	0.00200	0.50000	1.00000	1.00000	9.00000	9.99800	0.00000	0.00000	0.00000	0.00000
0.0021	0.00210	0.99790	0.00210	0.47619	1.00000	1.00000	9.00000	9.99790	0.00000	0.00000	0.00000	0.00000
0.0022	0.00220	0.99780	0.00220	0.45455	1.00000	1.00000	9.00000	9.99780	0.00000	0.00000	0.00000	0.00000
0.0023	0.00230	0.99770	0.00230	0.43478	1.00000	1.00000	9.00000	9.99770	0.00000	0.00000	0.00000	0.00000
0.0024	0.00240	0.99760	0.00240	0.41667	1.00000	1.00000	9.00000	9.99760	0.00000	0.00000	0.00000	0.00000
0.0025	0.00250	0.99750	0.00250	0.40000	1.00000	1.00000	9.00000	9.99750	0.00000	0.00000	0.00000	0.00000
0.0026	0.00260	0.99740	0.00260	0.38462	1.00000	1.00000	9.00000	9.99740	0.00000	0.00000	0.00000	0.00000
0.0027	0.00270	0.99730	0.00270	0.37037	1.00000	1.00000	9.00000	9.99730	0.00000	0.00000	0.00000	0.00000
0.0028	0.00280	0.99720	0.00280	0.35714	1.00000	1.00000	9.00000	9.99720	0.00000	0.00000	0.00000	0.00000
0.0029	0.00290	0.99710	0.00290	0.34483	1.00000	1.00000	9.00000	9.99710	0.00000	0.00000	0.00000	0.00000
0.0030	0.00300	0.99700	0.00300	0.33333	1.00000	1.00000	9.00000	9.99700	0.00000	0.00000	0.00000	0.00000
0.0031	0.00310	0.99690	0.00310	0.32258	1.00000	1.00000	9.00000	9.99690	0.00000	0.00000	0.00000	0.00000
0.0032	0.00320	0.99680	0.00320	0.31250	1.00000	1.00000	9.00000	9.99680	0.00000	0.00000	0.00000	0.00000
0.0033	0.00330	0.99670	0.00330	0.30303	1.00000	1.00000	9.00000	9.99670	0.00000	0.00000	0.00000	0.00000
0.0034	0.00340	0.99660	0.00340	0.29412	1.00000	1.00000	9.00000	9.99660	0.00000	0.00000	0.00000	0.00000
0.0035	0.00350	0.99650	0.00350	0.28571	1.00000	1.00000	9.00000	9.99650	0.00000	0.00000	0.00000	0.00000
0.0036	0.00360	0.99640	0.00360	0.27778	1.00000	1.00000	9.00000	9.99640	0.00000	0.00000	0.00000	0.00000
0.0037	0.00370	0.99630	0.00370	0.27027	1.00000	1.00000	9.00000	9.99630	0.00000	0.00000	0.00000	0.00000
0.0038	0.00380	0.99620	0.00380	0.26316	1.00000	1.00000	9.00000	9.99620	0.00000	0.00000	0.00000	0.00000
0.0039	0.00390	0.99610	0.00390	0.25641	1.00000	1.00000	9.00000	9.99610	0.00000	0.00000	0.00000	0.00000
0.0040	0.00400	0.99600	0.00400	0.25000	1.00000	1.00000	9.00000	9.99600	0.00000	0.00000	0.00000	0.00000
0.0041	0.00410	0.99590	0.00410	0.24390	1.00000	1.00000	9.00000	9.99590	0.00000	0.00000	0.00000	0.00000
0.0042	0.00420	0.99580	0.00420	0.23810	1.00000	1.00000	9.00000	9.99580	0.00000	0.00000	0.00000	0.00000
0.0043	0.00430	0.99570	0.00430	0.23256	1.00000	1.00000	9.00000	9.99570	0.00000	0.00000	0.00000	0.00000
0.0044	0.00440	0.99560	0.00440	0.22727	1.00000	1.00000	9.00000	9.99560	0.00000	0.00000	0.00000	0.00000
0.0045	0.00450	0.99550	0.00450	0.22222	1.00000	1.00000	9.00000	9.99550	0.00000	0.00000	0.00000	0.00000
0.0046	0.00460	0.99540	0.00460	0.21739	1.00000	1.00000	9.00000	9.99540	0.00000	0.00000	0.00000	0.00000
0.0047	0.00470	0.99530	0.00470	0.21277	1.00000	1.00000	9.00000	9.99530	0.00000	0.00000	0.00000	0.00000
0.0048	0.00480	0.99520	0.00480	0.20833	1.00000	1.00000	9.00000	9.99520	0.00000	0.00000	0.00000	0.00000
0.0049	0.00490	0.99510	0.00490	0.20409	1.00000	1.00000	9.00000	9.99510	0.00000	0.00000	0.00000	0.00000
0.0050	0.00500	0.99500	0.00500	0.20000	1.00000	1.00000	9.00000	9.99500	0.00000	0.00000	0.00000	0.00000
0.0051	0.00510	0.99490	0.00510	0.19608	1.00000	1.00000	9.00000	9.99490	0.00000	0.00000	0.00000	0.00000
0.0052	0.00520	0.99480	0.00520	0.19231	1.00000	1.00000	9.00000	9.99480	0.00000	0.00000	0.00000	0.00000
0.0053	0.00530	0.99470	0.00530	0.18869	1.00000	1.00000	9.00000	9.99470	0.00000	0.00000	0.00000	0.00000
0.0054	0.00540	0.99460	0.00540	0.18521	1.00000	1.00000	9.00000	9.99460	0.00000	0.00000	0.00000	0.00000
0.0055	0.00550	0.99450	0.00550	0.18182	1.00000	1.00000	9.00000	9.99450	0.00000	0.00000	0.00000	0.00000
0.0056	0.00560	0.99440	0.00560	0.17857	1.00000	1.00000	9.00000	9.99440	0.00000	0.00000	0.00000	0.00000
0.0057	0.00570	0.99430	0.00570	0.17544	1.00000	1.00000	9.00000	9.99430	0.00000	0.00000	0.00000	0.00000
0.0058	0.00580	0.99420	0.00580	0.17242	1.00000	1.00000	9.00000	9.99420	0.00000	0.00000	0.00000	0.00000
0.0059	0.00590	0.99410	0.00590	0.16951	1.00000	1.00000	9.00000	9.99410	0.00000	0.00000	0.00000	0.00000
0.0060	0.00600	0.99400	0.00600	0.16667	1.00000	1.00000	9.00000	9.99400	0.00000	0.00000	0.00000	0.00000
0.0061	0.00610	0.99390	0.00610	0.16393	1.00000	1.00000	9.00000	9.99390	0.00000	0.00000	0.00000	0.00000
0.0062	0.00620	0.99380	0.00620	0.16129	1.00000	1.00000	9.00000	9.99380	0.00000	0.00000	0.00000	0.00000
0.0063	0.00630	0.99370	0.00630	0.15876	1.00000	1.00000	9.00000	9.99370	0.00000	0.00000	0.00000	0.00000
0.0064	0.00640	0.99360	0.00640	0.15633	1.00000	1.00000	9.00000	9.99360	0.00000	0.00000	0.00000	0.00000
0.0065	0.00650	0.99350	0.00650	0.15399	1.00000	1.00000	9.00000	9.99350	0.00000	0.00000	0.00000	0.00000
0.0066	0.00660	0.99340	0.00660	0.15174	1.00000	1.00000	9.00000	9.99340	0.00000	0.00000	0.00000	0.00000
0.0067	0.00670	0.99330	0.00670	0.14957	1.00000	1.00000	9.00000	9.99330	0.00000	0.00000	0.00000	0.00000
0.0068	0.00680	0.99320	0.00680	0.14747	1.00000	1.00000	9.00000	9.99320	0.00000	0.00000	0.00000	0.00000
0.0069	0.00690	0.99310	0.00690	0.14544	1.00000	1.00000	9.00000	9.99310	0.00000	0.00000	0.00000	0.00000
0.0070	0.00700	0.99300	0.00700	0.14348	1.00000	1.00000	9.00000	9.99300	0.00000	0.00000	0.00000	0.00000
0.0071	0.00710	0.99290	0.00710	0.14158	1.00000	1.00000	9.00000	9.99290	0.00000	0.00000	0.00000	0.00000
0.0072	0.00720	0.99280	0.00720	0.13974	1.00000	1.00000	9.00000	9.99280	0.00000	0.00000	0.00000	0.00000
0.0073	0.00730	0.99270	0.00730	0.13795	1.00000	1.00000	9.00000	9.99270	0.00000	0.00000	0.00000	0.00000
0.0074	0.00740	0.99260	0.00740	0.13622	1.00000	1.00000	9.00000	9.99260	0.00000	0.00000	0.00000	0.00000
0.0075	0.00750	0.99250	0.00750	0.13455	1.00000	1.00000						

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u
0.0000	0.00000	1.00000	0.00000	∞	7.69897	8.0856	0.00000	0.0	0° 17' 11.32"
0.0001	0.00010	0.99990	0.00010	∞	7.69897	8.0856	0.00000	0.0	0° 17' 31.95"
0.0002	0.00020	0.99980	0.00020	∞	7.69897	8.0856	0.00000	0.0	0° 17' 52.58"
0.0003	0.00030	0.99970	0.00030	∞	7.69897	8.0856	0.00000	0.0	0° 18' 13.20"
0.0004	0.00040	0.99960	0.00040	∞	7.69897	8.0856	0.00000	0.0	0° 18' 33.83"
0.0005	0.00050	0.99950	0.00050	∞	7.69897	8.0856	0.00000	0.0	0° 18' 54.46"
0.0006	0.00060	0.99940	0.00060	∞	7.69897	8.0856	0.00000	0.0	0° 19' 15.08"
0.0007	0.00070	0.99930	0.00070	∞	7.69897	8.0856	0.00000	0.0	0° 19' 35.71"
0.0008	0.00080	0.99920	0.00080	∞	7.69897	8.0856	0.00000	0.0	0° 19' 56.34"
0.0009	0.00090	0.99910	0.00090	∞	7.69897	8.0856	0.00000	0.0	0° 20' 16.96"
0.0010	0.00100	0.99900	0.00100	∞	7.69897	8.0856	0.00000	0.0	0° 20' 37.59"
0.0011	0.00110	0.99890	0.00110	∞	7.69897	8.0856	0.00000	0.0	0° 20' 58.22"
0.0012	0.00120	0.99880	0.00120	∞	7.69897	8.0856	0.00000	0.0	0° 21' 18.84"
0.0013	0.00130	0.99870	0.00130	∞	7.69897	8.0856	0.00000	0.0	0° 21' 39.47"
0.0014	0.00140	0.99860	0.00140	∞	7.69897	8.0856	0.00000	0.0	0° 22' 00.09"
0.0015	0.00150	0.99850	0.00150	∞	7.69897	8.0856	0.00000	0.0	0° 22' 20.72"
0.0016	0.00160	0.99840	0.00160	∞	7.69897	8.0856	0.00000	0.0	0° 22' 41.35"
0.0017	0.00170	0.99830	0.00170	∞	7.69897	8.0856	0.00000	0.0	0° 23' 01.97"
0.0018	0.00180	0.99820	0.00180	∞	7.69897	8.0856	0.00000	0.0	0° 23' 22.60"
0.0019	0.00190	0.99810	0.00190	∞	7.69897	8.0856	0.00000	0.0	0° 23' 43.23"
0.0020	0.00200	0.99800	0.00200	∞	7.69897	8.0856	0.00000	0.0	0° 24' 03.86"
0.0021	0.00210	0.99790	0.00210	∞	7.69897	8.0856	0.00000	0.0	0° 24' 24.48"
0.0022	0.00220	0.99780	0.00220	∞	7.69897	8.0856	0.00000	0.0	0° 24' 45.11"
0.0023	0.00230	0.99770	0.00230	∞	7.69897	8.0856	0.00000	0.0	0° 25' 05.73"
0.0024	0.00240	0.99760	0.00240	∞	7.69897	8.0856	0.00000	0.0	0° 25' 26.36"
0.0025	0.00250	0.99750	0.00250	∞	7.69897	8.0856	0.00000	0.0	0° 25' 46.99"
0.0026	0.00260	0.99740	0.00260	∞	7.69897	8.0856	0.00000	0.0	0° 26' 07.62"
0.0027	0.00270	0.99730	0.00270	∞	7.69897	8.0856	0.00000	0.0	0° 26' 28.24"
0.0028	0.00280	0.99720	0.00280	∞	7.69897	8.0856	0.00000	0.0	0° 26' 48.87"
0.0029	0.00290	0.99710	0.00290	∞	7.69897	8.0856	0.00000	0.0	0° 27' 09.49"
0.0030	0.00300	0.99700	0.00300	∞	7.69897	8.0856	0.00000	0.0	0° 27' 30.12"
0.0031	0.00310	0.99690	0.00310	∞	7.69897	8.0856	0.00000	0.0	0° 27' 50.74"
0.0032	0.00320	0.99680	0.00320	∞	7.69897	8.0856	0.00000	0.0	0° 28' 11.37"
0.0033	0.00330	0.99670	0.00330	∞	7.69897	8.0856	0.00000	0.0	0° 28' 32.00"
0.0034	0.00340	0.99660	0.00340	∞	7.69897	8.0856	0.00000	0.0	0° 28' 52.62"
0.0035	0.00350	0.99650	0.00350	∞	7.69897	8.0856	0.00000	0.0	0° 29' 13.25"
0.0036	0.00360	0.99640	0.00360	∞	7.69897	8.0856	0.00000	0.0	0° 29' 33.88"
0.0037	0.00370	0.99630	0.00370	∞	7.69897	8.0856	0.00000	0.0	0° 29' 54.50"
0.0038	0.00380	0.99620	0.00380	∞	7.69897	8.0856	0.00000	0.0	0° 30' 15.13"
0.0039	0.00390	0.99610	0.00390	∞	7.69897	8.0856	0.00000	0.0	0° 30' 35.76"
0.0040	0.00400	0.99600	0.00400	∞	7.69897	8.0856	0.00000	0.0	0° 30' 56.38"
0.0041	0.00410	0.99590	0.00410	∞	7.69897	8.0856	0.00000	0.0	0° 31' 17.01"
0.0042	0.00420	0.99580	0.00420	∞	7.69897	8.0856	0.00000	0.0	0° 31' 37.64"
0.0043	0.00430	0.99570	0.00430	∞	7.69897	8.0856	0.00000	0.0	0° 31' 58.26"
0.0044	0.00440	0.99560	0.00440	∞	7.69897	8.0856	0.00000	0.0	0° 32' 18.89"
0.0045	0.00450	0.99550	0.00450	∞	7.69897	8.0856	0.00000	0.0	0° 32' 39.52"
0.0046	0.00460	0.99540	0.00460	∞	7.69897	8.0856	0.00000	0.0	0° 33' 00.14"
0.0047	0.00470	0.99530	0.00470	∞	7.69897	8.0856	0.00000	0.0	0° 33' 20.77"
0.0048	0.00480	0.99520	0.00480	∞	7.69897	8.0856	0.00000	0.0	0° 33' 41.40"
0.0049	0.00490	0.99510	0.00490	∞	7.69897	8.0856	0.00000	0.0	0° 34' 02.02"
0.0100	0.01000	0.99995	0.01000	∞	7.69897	8.0856	0.00000	0.0	0° 34' 22.65"
u	$-\ln \sin u$	$\ln \cos u$	$\ln \tan u$	$\ln \cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u

Circular Functions.

θ	$\sin \theta$	$= F_1'$	$\cos \theta$	$= F_2'$	$\log \sin \theta$	$= F_3'$	$\log \cos \theta$	$= F_4'$	θ
0.0100	0.01000	1000	0.99995	0.1	2.00000	-4.143	0.00000	0.0	0.31 43.45
.0101	.01010		.99995		8.00131	4.930	.00000		0.31 43.47
.0102	.01020		.99995		.00000	4.938	.00000		0.35 54.00
.0103	.01030		.99995		.01.353	4.946	.00000		0.35 54.51
.0104	.01040		.99995		.01703	4.954	.00000		0.35 55.03
0.0105	0.01050	1000	0.99994	0.1	8.01118	4.962	0.00000	0.0	0.35 55.58
.0106	.01060		.99994		.02530	4.970	.00000		0.35 56.11
.0107	.01070		.99994		.03418	4.978	.00000		0.35 56.63
.0108	.01080		.99994		.04312	4.986	.00000		0.35 57.16
.0109	.01090		.99994		.05212	4.994	.00000		0.35 57.69
0.0110	0.01100	1000	0.99993	0.1	8.02148	4.992	0.00000	0.0	0.37 48.41
.0111	.01110		.99993		.06131	5.000	.00000		0.37 48.94
.0112	.01120		.99993		.07021	5.008	.00000		0.37 49.47
.0113	.01130		.99993		.07918	5.016	.00000		0.37 50.00
.0114	.01140		.99993		.08820	5.024	.00000		0.37 50.53
0.0115	0.01150	1000	0.99992	0.1	8.03060	5.032	0.00000	0.0	0.39 32.05
.0116	.01160		.99992		.09715	5.040	.00000		0.39 32.57
.0117	.01170		.99992		.10618	5.048	.00000		0.39 33.10
.0118	.01180		.99992		.11527	5.056	.00000		0.39 33.62
.0119	.01190		.99992		.12431	5.064	.00000		0.39 34.15
0.0120	0.01200	1000	0.99991	0.1	8.04017	5.072	0.00000	0.1	0.41 15.68
.0121	.01210		.99991		.13377	5.080	.00000		0.41 16.20
.0122	.01220		.99991		.14285	5.088	.00000		0.41 16.73
.0123	.01230		.99991		.15190	5.096	.00000		0.41 17.26
.0124	.01240		.99991		.16091	5.104	.00000		0.41 17.78
0.0125	0.01250	1000	0.99990	0.1	8.05035	5.112	0.00000	0.1	0.43 58.31
.0126	.01260		.99990		.16996	5.120	.00000		0.43 58.84
.0127	.01270		.99990		.17900	5.128	.00000		0.43 59.36
.0128	.01280		.99990		.18803	5.136	.00000		0.44 00.19
.0129	.01290		.99990		.19705	5.144	.00000		0.44 00.72
0.0130	0.01300	1000	0.99989	0.1	8.06103	5.152	0.00000	0.1	0.44 41.12
.0131	.01310		.99989		.20610	5.160	.00000		0.45 02.07
.0132	.01320		.99989		.21515	5.168	.00000		0.45 02.50
.0133	.01330		.99989		.22418	5.176	.00000		0.45 03.32
.0134	.01340		.99989		.23320	5.184	.00000		0.45 04.05
0.0135	0.01350	1000	0.99988	0.1	8.07232	5.192	0.00000	0.1	0.46 21.67
.0136	.01360		.99988		.24233	5.200	.00000		0.46 22.20
.0137	.01370		.99988		.25141	5.208	.00000		0.47 05.83
.0138	.01380		.99988		.26047	5.216	.00000		0.47 06.15
.0139	.01390		.99988		.26950	5.224	.00000		0.47 07.08
0.0140	0.01400	1000	0.99987	0.1	8.08411	5.232	0.00000	0.1	0.48 07.71
.0141	.01410		.99987		.27860	5.240	.00000		0.48 08.31
.0142	.01420		.99987		.28767	5.248	.00000		0.48 08.90
.0143	.01430		.99987		.29672	5.256	.00000		0.49 00.50
.0144	.01440		.99987		.30575	5.264	.00000		0.49 01.21
0.0145	0.01450	1000	0.99986	0.1	8.09635	5.272	0.00000	0.1	0.49 50.83
.0146	.01460		.99986		.31481	5.280	.00000		0.50 11.47
.0147	.01470		.99986		.32383	5.288	.00000		0.50 12.09
.0148	.01480		.99986		.33283	5.296	.00000		0.50 52.72
.0149	.01490		.99986		.34181	5.304	.00000		0.51 13.35
0.0150	0.01500	1000	0.99985	0.1	8.10908	5.312	0.00000	0.1	0.51 33.47
θ	$-\sin \theta$	$= F_1'$	$\cos \theta$	$= F_2'$	$\log \sin \theta$	$= F_3'$	$\log \cos \theta$	$= F_4'$	θ

SMITHSONIAN TABLES

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
0.0150	0.01500	10.0	0.99989	0.1	8.17668	289.5	9.99998	0.1	0° 54' 33.97
0.0151	0.01510		0.99989	0.2	8.17680	289.6	9.99998		0° 54' 34.60
0.0152	0.01520		0.99988		8.17693	289.7	9.99998		0° 54' 35.23
0.0153	0.01530		0.99988		8.17707	289.8	9.99998		0° 54' 35.86
0.0154	0.01540		0.99988		8.17720	289.9	9.99998		0° 54' 36.48
0.0155	0.01550	10.0	0.99988	0.2	8.17734	290.0	9.99998	0.1	0° 53' 37.10
0.0156	0.01560		0.99988		8.17748	290.1	9.99998		0° 53' 37.73
0.0157	0.01570		0.99988		8.17762	290.2	9.99998		0° 53' 38.36
0.0158	0.01580		0.99987		8.17776	290.3	9.99998		0° 54' 38.98
0.0159	0.01590		0.99987		8.17790	290.4	9.99998		0° 54' 39.61
0.0160	0.01600	10.0	0.99987	0.2	8.17804	290.5	9.99998	0.1	0° 55' 00.24
0.0161	0.01610		0.99987		8.17818	290.6	9.99998		0° 55' 20.86
0.0162	0.01620		0.99987		8.17832	290.7	9.99998		0° 55' 41.49
0.0163	0.01630		0.99987		8.17846	290.8	9.99998		0° 56' 02.12
0.0164	0.01640		0.99987		8.17860	290.9	9.99998		0° 56' 22.74
0.0165	0.01650	10.0	0.99986	0.2	8.17874	291.0	9.99998	0.1	0° 56' 43.37
0.0166	0.01660		0.99986		8.17888	291.1	9.99998		0° 57' 04.00
0.0167	0.01670		0.99986		8.17902	291.2	9.99998		0° 57' 24.62
0.0168	0.01680		0.99986		8.17916	291.3	9.99998		0° 57' 45.25
0.0169	0.01690		0.99986		8.17930	291.4	9.99998		0° 58' 05.88
0.0170	0.01700	10.0	0.99986	0.2	8.17944	291.5	9.99998	0.1	0° 58' 26.50
0.0171	0.01710		0.99985		8.17958	291.6	9.99998		0° 58' 47.13
0.0172	0.01720		0.99985		8.17972	291.7	9.99998		0° 59' 07.75
0.0173	0.01730		0.99985		8.17986	291.8	9.99998		0° 59' 28.38
0.0174	0.01740		0.99985		8.17999	291.9	9.99998		0° 59' 49.01
0.0175	0.01750	10.0	0.99985	0.2	8.18013	292.0	9.99998	0.1	1° 00' 09.63
0.0176	0.01760		0.99985		8.18027	292.1	9.99998		1° 00' 30.26
0.0177	0.01770		0.99984		8.18041	292.2	9.99998		1° 00' 50.89
0.0178	0.01780		0.99984		8.18055	292.3	9.99998		1° 01' 11.51
0.0179	0.01790		0.99984		8.18069	292.4	9.99998		1° 01' 32.14
0.0180	0.01800	10.0	0.99984	0.2	8.18083	292.5	9.99998	0.1	1° 01' 52.77
0.0181	0.01810		0.99984		8.18097	292.6	9.99998		1° 02' 13.39
0.0182	0.01820		0.99983		8.18111	292.7	9.99998		1° 02' 34.02
0.0183	0.01830		0.99983		8.18125	292.8	9.99998		1° 02' 54.65
0.0184	0.01840		0.99983		8.18139	292.9	9.99998		1° 03' 15.27
0.0185	0.01850	10.0	0.99983	0.2	8.18153	293.0	9.99998	0.1	1° 03' 35.90
0.0186	0.01860		0.99983		8.18167	293.1	9.99998		1° 03' 56.53
0.0187	0.01870		0.99983		8.18181	293.2	9.99998		1° 04' 17.15
0.0188	0.01880		0.99982		8.18195	293.3	9.99998		1° 04' 37.78
0.0189	0.01890		0.99982		8.18209	293.4	9.99998		1° 04' 58.40
0.0190	0.01900	10.0	0.99982	0.2	8.18223	293.5	9.99998	0.1	1° 05' 19.03
0.0191	0.01910		0.99982		8.18237	293.6	9.99998		1° 05' 39.66
0.0192	0.01920		0.99982		8.18251	293.7	9.99998		1° 06' 00.28
0.0193	0.01930		0.99981		8.18265	293.8	9.99998		1° 06' 20.91
0.0194	0.01940		0.99981		8.18279	293.9	9.99998		1° 06' 41.54
0.0195	0.01950	10.0	0.99981	0.2	8.18293	294.0	9.99998	0.1	1° 07' 02.16
0.0196	0.01960		0.99981		8.18307	294.1	9.99998		1° 07' 22.79
0.0197	0.01970		0.99981		8.18321	294.2	9.99998		1° 07' 43.42
0.0198	0.01980		0.99980		8.18335	294.3	9.99998		1° 08' 04.04
0.0199	0.01990		0.99980		8.18349	294.4	9.99998		1° 08' 24.67
0.0200	0.02000	10.0	0.99980	0.2	8.18363	294.5	9.99998	0.1	1° 08' 45.30
u	$-\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\cot \alpha$	$\sec \alpha$	$\csc \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	$\log \tan \alpha$	$\log \cot \alpha$	$\log \sec \alpha$	$\log \csc \alpha$
0.0000	0.00000	1.00000	0.00000	∞	1.00000	∞	8.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0010	0.0009999	0.9999999	0.0010000	999.99999	1.0000001	1.0000000	8.0000000	-0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
0.0020	0.0019996	0.9998000	0.0020004	499.99996	1.0000004	1.0000002	7.9999999	-0.0000004	0.0000000	0.0000000	0.0000000	0.0000000
0.0030	0.0029971	0.9995001	0.0030016	333.33333	1.0000009	1.0000005	7.9999994	-0.0000009	0.0000000	0.0000000	0.0000000	0.0000000
0.0040	0.0039928	0.9991000	0.0040048	250.00000	1.0000016	1.0000012	7.9999989	-0.0000016	0.0000000	0.0000000	0.0000000	0.0000000
0.0050	0.0049875	0.9986000	0.0050099	199.99999	1.0000025	1.0000020	7.9999984	-0.0000025	0.0000000	0.0000000	0.0000000	0.0000000
0.0060	0.0059802	0.9979999	0.0060168	166.66667	1.0000036	1.0000031	7.9999979	-0.0000036	0.0000000	0.0000000	0.0000000	0.0000000
0.0070	0.0059709	0.9972999	0.0070256	142.85714	1.0000049	1.0000043	7.9999974	-0.0000049	0.0000000	0.0000000	0.0000000	0.0000000
0.0080	0.0059596	0.9964999	0.0080368	125.00000	1.0000064	1.0000057	7.9999969	-0.0000064	0.0000000	0.0000000	0.0000000	0.0000000
0.0090	0.0059463	0.9955999	0.0090504	111.11111	1.0000081	1.0000073	7.9999964	-0.0000081	0.0000000	0.0000000	0.0000000	0.0000000
0.0100	0.0059310	0.9945999	0.0100664	100.00000	1.0000100	1.0000091	7.9999959	-0.0000100	0.0000000	0.0000000	0.0000000	0.0000000
0.0110	0.0059137	0.9934999	0.0110848	90.90909	1.0000121	1.0000111	7.9999954	-0.0000121	0.0000000	0.0000000	0.0000000	0.0000000
0.0120	0.0058944	0.9922999	0.0121056	83.33333	1.0000144	1.0000133	7.9999949	-0.0000144	0.0000000	0.0000000	0.0000000	0.0000000
0.0130	0.0058731	0.9909999	0.0131288	76.92308	1.0000169	1.0000157	7.9999944	-0.0000169	0.0000000	0.0000000	0.0000000	0.0000000
0.0140	0.0058498	0.9895999	0.0141544	71.42857	1.0000196	1.0000183	7.9999939	-0.0000196	0.0000000	0.0000000	0.0000000	0.0000000
0.0150	0.0058245	0.9880999	0.0151824	66.66667	1.0000225	1.0000211	7.9999934	-0.0000225	0.0000000	0.0000000	0.0000000	0.0000000
0.0160	0.0057972	0.9864999	0.0162128	62.50000	1.0000256	1.0000241	7.9999929	-0.0000256	0.0000000	0.0000000	0.0000000	0.0000000
0.0170	0.0057679	0.9847999	0.0172456	58.82353	1.0000289	1.0000273	7.9999924	-0.0000289	0.0000000	0.0000000	0.0000000	0.0000000
0.0180	0.0057366	0.9829999	0.0182808	55.55556	1.0000324	1.0000307	7.9999919	-0.0000324	0.0000000	0.0000000	0.0000000	0.0000000
0.0190	0.0057033	0.9810999	0.0193184	52.63158	1.0000361	1.0000343	7.9999914	-0.0000361	0.0000000	0.0000000	0.0000000	0.0000000
0.0200	0.0056680	0.9790999	0.0203584	50.00000	1.0000400	1.0000381	7.9999909	-0.0000400	0.0000000	0.0000000	0.0000000	0.0000000
0.0210	0.0056307	0.9769999	0.0214008	47.61905	1.0000441	1.0000421	7.9999904	-0.0000441	0.0000000	0.0000000	0.0000000	0.0000000
0.0220	0.0055914	0.9747999	0.0224456	45.45455	1.0000484	1.0000463	7.9999900	-0.0000484	0.0000000	0.0000000	0.0000000	0.0000000
0.0230	0.0055499	0.9724999	0.0234928	43.47826	1.0000529	1.0000507	7.9999895	-0.0000529	0.0000000	0.0000000	0.0000000	0.0000000
0.0240	0.0055062	0.9700999	0.0245424	41.66667	1.0000576	1.0000553	7.9999890	-0.0000576	0.0000000	0.0000000	0.0000000	0.0000000
0.0250	0.0054603	0.9675999	0.0255944	40.00000	1.0000625	1.0000599	7.9999885	-0.0000625	0.0000000	0.0000000	0.0000000	0.0000000
0.0260	0.0054122	0.9649999	0.0266488	38.46154	1.0000676	1.0000647	7.9999880	-0.0000676	0.0000000	0.0000000	0.0000000	0.0000000
0.0270	0.0053619	0.9622999	0.0277056	37.03704	1.0000729	1.0000699	7.9999875	-0.0000729	0.0000000	0.0000000	0.0000000	0.0000000
0.0280	0.0053094	0.9594999	0.0287648	35.71429	1.0000784	1.0000753	7.9999870	-0.0000784	0.0000000	0.0000000	0.0000000	0.0000000
0.0290	0.0052547	0.9565999	0.0298264	34.48276	1.0000841	1.0000809	7.9999865	-0.0000841	0.0000000	0.0000000	0.0000000	0.0000000
0.0300	0.0051978	0.9535999	0.0308904	33.33333	1.0000900	1.0000867	7.9999860	-0.0000900	0.0000000	0.0000000	0.0000000	0.0000000
0.0310	0.0051387	0.9504999	0.0319568	32.25806	1.0000961	1.0000927	7.9999855	-0.0000961	0.0000000	0.0000000	0.0000000	0.0000000
0.0320	0.0050774	0.9472999	0.0330256	31.25000	1.0001024	1.0000989	7.9999850	-0.0001024	0.0000000	0.0000000	0.0000000	0.0000000
0.0330	0.0050139	0.9439999	0.0340968	30.30303	1.0001089	1.0001053	7.9999845	-0.0001089	0.0000000	0.0000000	0.0000000	0.0000000
0.0340	0.0049482	0.9405999	0.0351704	29.41176	1.0001156	1.0001117	7.9999840	-0.0001156	0.0000000	0.0000000	0.0000000	0.0000000
0.0350	0.0048803	0.9370999	0.0362464	28.57143	1.0001225	1.0001185	7.9999835	-0.0001225	0.0000000	0.0000000	0.0000000	0.0000000
0.0360	0.0048102	0.9334999	0.0373248	27.77778	1.0001296	1.0001255	7.9999830	-0.0001296	0.0000000	0.0000000	0.0000000	0.0000000
0.0370	0.0047379	0.9297999	0.0384064	27.02703	1.0001369	1.0001327	7.9999825	-0.0001369	0.0000000	0.0000000	0.0000000	0.0000000
0.0380	0.0046634	0.9259999	0.0394912	26.31579	1.0001444	1.0001399	7.9999820	-0.0001444	0.0000000	0.0000000	0.0000000	0.0000000
0.0390	0.0045867	0.9220999	0.0405792	25.64103	1.0001521	1.0001473	7.9999815	-0.0001521	0.0000000	0.0000000	0.0000000	0.0000000
0.0400	0.0045078	0.9180999	0.0416704	25.00000	1.0001600	1.0001549	7.9999810	-0.0001600	0.0000000	0.0000000	0.0000000	0.0000000
0.0410	0.0044267	0.9139999	0.0427648	24.39024	1.0001681	1.0001627	7.9999805	-0.0001681	0.0000000	0.0000000	0.0000000	0.0000000
0.0420	0.0043434	0.9097999	0.0438624	23.80952	1.0001764	1.0001707	7.9999800	-0.0001764	0.0000000	0.0000000	0.0000000	0.0000000
0.0430	0.0042579	0.9054999	0.0449632	23.25000	1.0001849	1.0001789	7.9999795	-0.0001849	0.0000000	0.0000000	0.0000000	0.0000000
0.0440	0.0041702	0.9010999	0.0460672	22.71429	1.0001936	1.0001873	7.9999790	-0.0001936	0.0000000	0.0000000	0.0000000	0.0000000
0.0450	0.0040803	0.8965999	0.0471744	22.20000	1.0002025	1.0001959	7.9999785	-0.0002025	0.0000000	0.0000000	0.0000000	0.0000000
0.0460	0.0039882	0.8919999	0.0482848	21.70714	1.0002116	1.0002047	7.9999780	-0.0002116	0.0000000	0.0000000	0.0000000	0.0000000
0.0470	0.0038939	0.8872999	0.0493984	21.23438	1.0002209	1.0002137	7.9999775	-0.0002209	0.0000000	0.0000000	0.0000000	0.0000000
0.0480	0.0037974	0.8824999	0.0505152	20.78125	1.0002304	1.0002229	7.9999770	-0.0002304	0.0000000	0.0000000	0.0000000	0.0000000
0.0490	0.0036987	0.8775999	0.0516352	20.34688	1.0002401	1.0002323	7.9999765	-0.0002401	0.0000000	0.0000000	0.0000000	0.0000000
0.0500	0.0035978	0.8725999	0.0527584	20.00000	1.0002500	1.0002419	7.9999760	-0.0002500	0.0000000	0.0000000	0.0000000	0.0000000
0.0510	0.0034947	0.8674999	0.0538848	19.67213	1.0002601	1.0002517	7.9999755	-0.0002601	0.0000000	0.0000000	0.0000000	0.0000000
0.0520	0.0033894	0.8622999	0.0550144	19.35926	1.0002704	1.0002617	7.9999750	-0.0002704	0.0000000	0.0000000	0.0000000	0.0000000
0.0530	0.0032819	0.8569999	0.0561472	19.06099	1.0002809	1.0002719	7.9999745	-0.0002809	0.0000000	0.0000000	0.0000000	0.0000000
0.0540	0.0031722	0.8515999	0.0572832	18.77666	1.0002916	1.0002823	7.9999740	-0.0002916	0.0000000	0.0000000	0.0000000	0.0000000
0.0550	0.0030603	0.8460999	0.0584224	18.50500	1.0003025	1.0002929	7.9999735	-0.0003025	0.0000000	0.0000000	0.0000000	0.0000000
0.0560	0.0029462	0.8404999	0.0595648	18.24571	1.0003136	1.0003037	7.9999730	-0.0003136	0.0000000	0.0000000	0.0000000	0.0000000
0.0570	0.0028299	0.8347999	0.0607104	18.00000	1.0003249	1.0003147	7.9999725	-0.0003249	0.0000000	0.0000000	0.0000000	0.0000000
0.0580	0.0027114	0.8289999	0.0618592	17.76667	1.0003364	1.0003259	7.9999720	-0.0003364	0.0000000	0.0000000	0.0000000	0.0000000
0.0590	0.0025907	0.8230999	0.0630112	17.54545	1.0003481	1.0003373	7.9999715	-0.0003481	0.0000000	0.0000000	0.0000000	0.0000000
0.0600	0.0024678	0.8170999	0.0641664	17.33333	1.0003600	1.0003489	7.9999710	-0.0003600	0.0000000	0.0000000	0.0000000	0.0000000
0.0610	0.0023427	0.8109999	0.0653248	17.13043	1.0003721	1.0003607	7.9999705	-0.0003721	0.0000000	0.0000000	0.0000000	0.0000000
0.0620	0.0022154	0.8047999	0.0664864	16.93750	1.0003844	1.0003727	7.9999700	-0.0003844	0.0000000	0.0000000	0.0000000	0.0000000
0.0630	0.0020859	0.7984999	0.0676512	16.75439	1.0003969	1.0003849	7.9999695	-0.0003969	0.0000000	0.0000000	0.0000000	0.0000000
0.0640	0.0019542	0.7920999	0.0688192	16.58093	1.0004096	1.0003973	7.9999690	-0.0004096	0.0000000	0.0000000	0.0000000	0.0000000
0.0650	0.0018203	0.7855999	0.0699904	16.41736	1.0004225	1.0004099	7.9999685	-0.0004225	0.0000000	0.0000000	0.0000000	0.0000000
0.0660	0.0016842											

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\cot \alpha$	$\sec \alpha$	$\csc \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	$\log \tan \alpha$	$\log \cot \alpha$	$\log \sec \alpha$	$\log \csc \alpha$	α
0.0000	0.00000	1.00000	0.00000		1.00000		8.30103	17.12	9.00000	0.1	1.25 56.62		1 25 56.62
0.0010	0.00100	0.99999	0.00100		1.00001		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0020	0.00200	0.99998	0.00200		1.00004		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0030	0.00300	0.99997	0.00300		1.00009		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0040	0.00400	0.99996	0.00400		1.00016		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0050	0.00500	0.99995	0.00500		1.00025		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0060	0.00600	0.99994	0.00600		1.00036		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0070	0.00700	0.99993	0.00700		1.00049		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0080	0.00800	0.99992	0.00800		1.00064		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0090	0.00900	0.99991	0.00900		1.00081		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0100	0.01000	0.99990	0.01000		1.00100		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0110	0.01100	0.99989	0.01100		1.00121		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0120	0.01200	0.99988	0.01200		1.00144		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0130	0.01300	0.99987	0.01300		1.00169		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0140	0.01400	0.99986	0.01400		1.00196		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0150	0.01500	0.99985	0.01500		1.00225		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0160	0.01600	0.99984	0.01600		1.00256		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0170	0.01700	0.99983	0.01700		1.00289		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0180	0.01800	0.99982	0.01800		1.00324		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0190	0.01900	0.99981	0.01900		1.00361		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0200	0.02000	0.99980	0.02000		1.00400		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0210	0.02100	0.99979	0.02100		1.00441		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0220	0.02200	0.99978	0.02200		1.00484		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0230	0.02300	0.99977	0.02300		1.00529		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0240	0.02400	0.99976	0.02400		1.00576		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0250	0.02500	0.99975	0.02500		1.00625		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0260	0.02600	0.99974	0.02600		1.00676		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0270	0.02700	0.99973	0.02700		1.00729		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0280	0.02800	0.99972	0.02800		1.00784		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0290	0.02900	0.99971	0.02900		1.00841		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0300	0.03000	0.99970	0.03000		1.00900		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0310	0.03100	0.99969	0.03100		1.00961		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0320	0.03200	0.99968	0.03200		1.01024		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0330	0.03300	0.99967	0.03300		1.01089		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0340	0.03400	0.99966	0.03400		1.01156		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0350	0.03500	0.99965	0.03500		1.01225		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0360	0.03600	0.99964	0.03600		1.01296		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0370	0.03700	0.99963	0.03700		1.01369		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0380	0.03800	0.99962	0.03800		1.01444		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0390	0.03900	0.99961	0.03900		1.01521		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0400	0.04000	0.99960	0.04000		1.01600		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0410	0.04100	0.99959	0.04100		1.01681		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0420	0.04200	0.99958	0.04200		1.01764		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0430	0.04300	0.99957	0.04300		1.01849		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0440	0.04400	0.99956	0.04400		1.01936		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0450	0.04500	0.99955	0.04500		1.02025		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0460	0.04600	0.99954	0.04600		1.02116		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0470	0.04700	0.99953	0.04700		1.02209		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0480	0.04800	0.99952	0.04800		1.02304		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0490	0.04900	0.99951	0.04900		1.02401		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0500	0.05000	0.99950	0.05000		1.02500		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0510	0.05100	0.99949	0.05100		1.02601		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0520	0.05200	0.99948	0.05200		1.02704		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0530	0.05300	0.99947	0.05300		1.02809		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0540	0.05400	0.99946	0.05400		1.02916		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0550	0.05500	0.99945	0.05500		1.03025		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0560	0.05600	0.99944	0.05600		1.03136		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0570	0.05700	0.99943	0.05700		1.03249		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0580	0.05800	0.99942	0.05800		1.03364		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0590	0.05900	0.99941	0.05900		1.03481		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0600	0.06000	0.99940	0.06000		1.03600		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0610	0.06100	0.99939	0.06100		1.03721		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0620	0.06200	0.99938	0.06200		1.03844		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0630	0.06300	0.99937	0.06300		1.03969		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0640	0.06400	0.99936	0.06400		1.04096		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0650	0.06500	0.99935	0.06500		1.04225		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0660	0.06600	0.99934	0.06600		1.04356		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0670	0.06700	0.99933	0.06700		1.04489		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0680	0.06800	0.99932	0.06800		1.04624		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0690	0.06900	0.99931	0.06900		1.04761		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0700	0.07000	0.99930	0.07000		1.04900		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0710	0.07100	0.99929	0.07100		1.05041		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0720	0.07200	0.99928	0.07200		1.05184		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0730	0.07300	0.99927	0.07300		1.05329		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0740	0.07400	0.99926	0.07400		1.05476		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0750	0.07500	0.99925	0.07500		1.05625		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0760	0.07600	0.99924	0.07600		1.05776		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0770	0.07700	0.99923	0.07700		1.05929		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0780	0.07800	0.99922	0.07800		1.06084		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0790	0.07900	0.99921	0.07900		1.06241		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0800	0.08000	0.99920	0.08000		1.06400		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0810	0.08100	0.99919	0.08100		1.06561		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0820	0.08200	0.99918	0.08200		1.06724		8.30103	17.12	9.00000	1 25 56.62			1 25 56.62
0.0830	0.08300	0.99917	0.08300		1.06889		8.30103	17.12	9.00000				

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	π
0.0300	0.03000	10.0	0.99955	0.3	8.47705	144.7	9.99980	0.1	1 43 57.94
0.0301	0.03000		0.99955		47850	144.7	9.99980		1 43 58.57
0.0302	0.03000		0.99954		47994	144.8	9.99980		1 43 59.20
0.0303	0.03000		0.99954		48138	144.8	9.99980		1 44 00.82
0.0304	0.03000		0.99954		48281	144.8	9.99980		1 44 01.45
0.0305	0.03050	10.0	0.99953	0.3	8.48423	144.3	9.99980	0.1	1 44 51.08
0.0306	0.03050		0.99953		48565	144.9	9.99980		1 45 11.70
0.0307	0.03070		0.99953		48707	144.4	9.99980		1 45 32.31
0.0308	0.03080		0.99953		48848	144.0	9.99979		1 45 52.90
0.0309	0.03090		0.99952		48989	140.5	9.99979		1 46 13.58
0.0310	0.03100	10.0	0.99952	0.3	8.49129	140.1	9.99979	0.1	1 46 34.21
0.0311	0.03100		0.99952		49269	139.6	9.99979		1 46 54.84
0.0312	0.03110		0.99951		49408	139.2	9.99979		1 47 15.46
0.0313	0.03120		0.99951		49547	138.7	9.99979		1 47 36.09
0.0314	0.03120		0.99951		49686	138.3	9.99979		1 47 56.71
0.0315	0.03149	10.0	0.99950	0.3	8.49824	137.8	9.99978	0.1	1 48 17.34
0.0316	0.03160		0.99950		49861	137.4	9.99978		1 48 37.97
0.0317	0.03160		0.99950		50000	137.0	9.99978		1 48 58.59
0.0318	0.03170		0.99949		50138	136.5	9.99978		1 49 19.22
0.0319	0.03180		0.99949		50277	136.1	9.99978		1 49 39.85
0.0320	0.03190	10.0	0.99949	0.3	8.50468	135.7	9.99978	0.1	1 50 00.47
0.0321	0.03200		0.99948		50583	135.2	9.99978		1 50 21.10
0.0322	0.03210		0.99948		50728	134.8	9.99977		1 50 41.73
0.0323	0.03220		0.99948		50873	134.4	9.99977		1 51 02.35
0.0324	0.03230		0.99948		51017	134.0	9.99977		1 51 22.98
0.0325	0.03240	10.0	0.99947	0.3	8.51181	133.6	9.99977	0.1	1 51 43.61
0.0326	0.03250		0.99947		51314	133.2	9.99977		1 52 04.23
0.0327	0.03260		0.99947		51447	132.8	9.99977		1 52 24.86
0.0328	0.03270		0.99946		51580	132.4	9.99977		1 52 45.49
0.0329	0.03280		0.99946		51712	132.0	9.99976		1 53 06.11
0.0330	0.03290	10.0	0.99946	0.3	8.51844	131.6	9.99976	0.1	1 53 26.74
0.0331	0.03300		0.99945		51973	131.2	9.99976		1 53 47.37
0.0332	0.03310		0.99945		52106	130.8	9.99976		1 54 07.99
0.0333	0.03320		0.99945		52239	130.4	9.99976		1 54 28.62
0.0334	0.03330		0.99944		52367	130.0	9.99976		1 54 49.24
0.0335	0.03340	10.0	0.99944	0.3	8.52496	129.6	9.99976	0.1	1 55 09.87
0.0336	0.03350		0.99944		52596	129.2	9.99975		1 55 30.50
0.0337	0.03360		0.99943		52725	128.8	9.99975		1 55 51.12
0.0338	0.03370		0.99943		52853	128.4	9.99975		1 56 11.75
0.0339	0.03380		0.99943		53012	128.1	9.99975		1 56 32.38
0.0340	0.03390	10.0	0.99942	0.3	8.53140	127.7	9.99975	0.1	1 56 53.00
0.0341	0.03400		0.99942		53267	127.3	9.99975		1 57 13.63
0.0342	0.03410		0.99942		53394	126.9	9.99975		1 57 34.25
0.0343	0.03420		0.99941		53521	126.6	9.99974		1 57 54.88
0.0344	0.03430		0.99941		53647	126.2	9.99974		1 58 15.51
0.0345	0.03440	10.0	0.99940	0.3	8.53773	125.8	9.99974	0.1	1 58 36.14
0.0346	0.03450		0.99940		53800	125.5	9.99974	0.2	1 58 56.76
0.0347	0.03460		0.99940		54024	125.1	9.99974		1 59 17.39
0.0348	0.03470		0.99939		54149	124.7	9.99974		1 59 38.02
0.0349	0.03480		0.99939		54274	124.4	9.99974		1 59 58.64
0.0350	0.03490	10.0	0.99939	0.3	8.54308	124.0	9.99973	0.2	2 00 19.27
π	$-\frac{1}{2} \sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\log \frac{\sinh u}{u}$	$= F_3'$	$\log \cosh u$	$= F_4'$	u

B. N. THORNTON TABLES

Circular Functions.

u	$\sin u$	$\sin^2 u$	$\cos u$	$\cos^2 u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$	$\log \csc u$
0.0000	0.00000	0.00000	1.00000	1.00000	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0010	0.0009999	0.0009998	0.9999999	0.9999998	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0020	0.0019996	0.0019992	0.9998004	0.9996008	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0030	0.0029985	0.0029970	0.9997015	0.9994030	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0040	0.0039966	0.0039932	0.9996030	0.9992060	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0050	0.0049939	0.0049895	0.9995045	0.9990090	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0060	0.0059904	0.0059850	0.9994060	0.9988120	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0070	0.0069869	0.0069805	0.9993075	0.9987140	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0080	0.0079834	0.0079760	0.9992090	0.9986160	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0090	0.0079799	0.0079715	0.9991105	0.9985180	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0100	0.0079764	0.0079670	0.9990120	0.9984200	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0110	0.0079729	0.0079625	0.9989135	0.9983220	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0120	0.0079694	0.0079580	0.9988150	0.9982240	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0130	0.0079659	0.0079535	0.9987165	0.9981260	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0140	0.0079624	0.0079490	0.9986180	0.9980280	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0150	0.0079589	0.0079445	0.9985195	0.9979300	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0160	0.0079554	0.0079399	0.9984210	0.9978320	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0170	0.0079519	0.0079354	0.9983225	0.9977340	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0180	0.0079484	0.0079309	0.9982240	0.9976360	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0190	0.0079449	0.0079264	0.9981255	0.9975380	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0200	0.0079414	0.0079219	0.9980270	0.9974400	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0210	0.0079379	0.0079174	0.9979285	0.9973420	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0220	0.0079344	0.0079129	0.9978300	0.9972440	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0230	0.0079309	0.0079084	0.9977315	0.9971460	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0240	0.0079274	0.0079039	0.9976330	0.9970480	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0250	0.0079239	0.0079004	0.9975345	0.9969500	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0260	0.0079204	0.0078969	0.9974360	0.9968520	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0270	0.0079169	0.0078934	0.9973375	0.9967540	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0280	0.0079134	0.0078899	0.9972390	0.9966560	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0290	0.0079099	0.0078864	0.9971405	0.9965580	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0300	0.0079064	0.0078829	0.9970420	0.9964600	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0310	0.0079029	0.0078794	0.9969435	0.9963620	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0320	0.0078994	0.0078759	0.9968450	0.9962640	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0330	0.0078959	0.0078724	0.9967465	0.9961660	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0340	0.0078924	0.0078689	0.9966480	0.9960680	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0350	0.0078889	0.0078654	0.9965495	0.9959700	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0360	0.0078854	0.0078619	0.9964510	0.9958720	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0370	0.0078819	0.0078584	0.9963525	0.9957740	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0380	0.0078784	0.0078549	0.9962540	0.9956760	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0390	0.0078749	0.0078514	0.9961555	0.9955780	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0400	0.0078714	0.0078479	0.9960570	0.9954800	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0410	0.0078679	0.0078444	0.9959585	0.9953820	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0420	0.0078644	0.0078409	0.9958600	0.9952840	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0430	0.0078609	0.0078374	0.9957615	0.9951860	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0440	0.0078574	0.0078339	0.9956630	0.9950880	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0450	0.0078539	0.0078304	0.9955645	0.9949900	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0460	0.0078504	0.0078269	0.9954660	0.9948920	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0470	0.0078469	0.0078234	0.9953675	0.9947940	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0480	0.0078434	0.0078199	0.9952690	0.9946960	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0490	0.0078399	0.0078164	0.9951705	0.9945980	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0500	0.0078364	0.0078129	0.9950720	0.9945000	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0510	0.0078329	0.0078094	0.9949735	0.9944020	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0520	0.0078294	0.0078059	0.9948750	0.9943040	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0530	0.0078259	0.0078024	0.9947765	0.9942060	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0540	0.0078224	0.0077989	0.9946780	0.9941080	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0550	0.0078189	0.0077954	0.9945795	0.9940100	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0560	0.0078154	0.0077919	0.9944810	0.9939120	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0570	0.0078119	0.0077884	0.9943825	0.9938140	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0580	0.0078084	0.0077849	0.9942840	0.9937160	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0590	0.0078049	0.0077814	0.9941855	0.9936180	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0600	0.0078014	0.0077779	0.9940870	0.9935200	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0610	0.0077979	0.0077744	0.9939885	0.9934220	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0620	0.0077944	0.0077709	0.9938900	0.9933240	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0630	0.0077909	0.0077674	0.9937915	0.9932260	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0640	0.0077874	0.0077639	0.9936930	0.9931280	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0650	0.0077839	0.0077604	0.9935945	0.9930300	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0660	0.0077804	0.0077569	0.9934960	0.9929320	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0670	0.0077769	0.0077534	0.9933975	0.9928340	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0680	0.0077734	0.0077499	0.9932990	0.9927360	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0690	0.0077699	0.0077464	0.9932005	0.9926380	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0700	0.0077664	0.0077429	0.9931020	0.9925400	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0710	0.0077629	0.0077394	0.9930035	0.9924420	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0720	0.0077594	0.0077359	0.9929050	0.9923440	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0730	0.0077559	0.0077324	0.9928065	0.9922460	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0740	0.0077524	0.0077289	0.9927080	0.9921480	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0750	0.0077489	0.0077254	0.9926095	0.9920500	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0760	0.0077454	0.0077219	0.9925110	0.9919520	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0770	0.0077419	0.0077184	0.9924125	0.9918540	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0780	0.0077384	0.0077149	0.9923140	0.9917560	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0790	0.0077349	0.0077114	0.9922155	0.9916580	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0800	0.0077314	0.0077079	0.9921170	0.9915600	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0810	0.0077279	0.0077044	0.9920185	0.9914620	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0820	0.0077244	0.0077009	0.9919200	0.9913640	8.54005	12.00000	0.00000	0.00000	0.00000	0.00000
0.0830	0.0077209	0.0076974	0.9918215	0.9912660						

Circular Functions.

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\cot \theta$	$\sec \theta$	$\csc \theta$	$\log \sin \theta$	$\log \cos \theta$	$\log \tan \theta$	$\log \cot \theta$	$\log \sec \theta$	$\log \csc \theta$
0.0000	0.00000	1.00000	0.00000	∞	1.00000	∞	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0010	0.00099	0.99999	0.00100	999.999	1.00001	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0020	0.00199	0.99980	0.00200	499.999	1.00004	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0030	0.00299	0.99959	0.00300	333.333	1.00009	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0040	0.00398	0.99938	0.00400	250.000	1.00016	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0050	0.00497	0.99917	0.00500	200.000	1.00025	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0060	0.00596	0.99896	0.00600	166.667	1.00036	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0070	0.00695	0.99875	0.00700	142.857	1.00048	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0080	0.00794	0.99854	0.00800	125.000	1.00061	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0090	0.00893	0.99833	0.00900	111.111	1.00075	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0100	0.00992	0.99812	0.01000	100.000	1.00090	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0110	0.01091	0.99791	0.01100	90.909	1.00105	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0120	0.01190	0.99770	0.01200	83.333	1.00121	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0130	0.01189	0.99749	0.01300	76.923	1.00137	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0140	0.01188	0.99728	0.01400	71.429	1.00154	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0150	0.01187	0.99707	0.01500	66.667	1.00171	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0160	0.01186	0.99686	0.01600	62.500	1.00188	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0170	0.01185	0.99665	0.01700	59.091	1.00205	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0180	0.01184	0.99644	0.01800	56.250	1.00222	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0190	0.01183	0.99623	0.01900	53.846	1.00239	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0200	0.01182	0.99602	0.02000	51.667	1.00256	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0210	0.01181	0.99581	0.02100	49.762	1.00273	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0220	0.01180	0.99560	0.02200	48.000	1.00290	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0230	0.01179	0.99539	0.02300	46.452	1.00307	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0240	0.01178	0.99518	0.02400	45.000	1.00324	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0250	0.01177	0.99497	0.02500	43.750	1.00341	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0260	0.01176	0.99476	0.02600	42.667	1.00358	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0270	0.01175	0.99455	0.02700	41.667	1.00375	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0280	0.01174	0.99434	0.02800	40.769	1.00392	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0290	0.01173	0.99413	0.02900	40.000	1.00409	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0300	0.01172	0.99392	0.03000	39.333	1.00426	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0310	0.01171	0.99371	0.03100	38.750	1.00443	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0320	0.01170	0.99350	0.03200	38.235	1.00460	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0330	0.01169	0.99329	0.03300	37.778	1.00477	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0340	0.01168	0.99308	0.03400	37.373	1.00494	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0350	0.01167	0.99287	0.03500	37.019	1.00511	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0360	0.01166	0.99266	0.03600	36.714	1.00528	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0370	0.01165	0.99245	0.03700	36.458	1.00545	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0380	0.01164	0.99224	0.03800	36.250	1.00562	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0390	0.01163	0.99203	0.03900	36.087	1.00579	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0400	0.01162	0.99182	0.04000	35.979	1.00596	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0410	0.01161	0.99161	0.04100	35.914	1.00613	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0420	0.01160	0.99140	0.04200	35.893	1.00630	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0430	0.01159	0.99119	0.04300	35.914	1.00647	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0440	0.01158	0.99098	0.04400	35.979	1.00664	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0450	0.01157	0.99077	0.04500	36.087	1.00681	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0460	0.01156	0.99056	0.04600	36.235	1.00698	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0470	0.01155	0.99035	0.04700	36.423	1.00715	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0480	0.01154	0.99014	0.04800	36.652	1.00732	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0490	0.01153	0.98993	0.04900	36.923	1.00749	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0500	0.01152	0.98972	0.05000	37.235	1.00766	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0510	0.01151	0.98951	0.05100	37.589	1.00783	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0520	0.01150	0.98930	0.05200	38.000	1.00800	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0530	0.01149	0.98909	0.05300	38.467	1.00817	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0540	0.01148	0.98888	0.05400	38.990	1.00834	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0550	0.01147	0.98867	0.05500	39.569	1.00851	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0560	0.01146	0.98846	0.05600	40.206	1.00868	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0570	0.01145	0.98825	0.05700	40.902	1.00885	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0580	0.01144	0.98804	0.05800	41.658	1.00902	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0590	0.01143	0.98783	0.05900	42.476	1.00919	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0600	0.01142	0.98762	0.06000	43.357	1.00936	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0610	0.01141	0.98741	0.06100	44.302	1.00953	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0620	0.01140	0.98720	0.06200	45.314	1.00970	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0630	0.01139	0.98699	0.06300	46.395	1.00987	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0640	0.01138	0.98678	0.06400	47.548	1.01004	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0650	0.01137	0.98657	0.06500	48.776	1.01021	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0660	0.01136	0.98636	0.06600	50.081	1.01038	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0670	0.01135	0.98615	0.06700	51.467	1.01055	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0680	0.01134	0.98594	0.06800	52.938	1.01072	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0690	0.01133	0.98573	0.06900	54.498	1.01089	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0700	0.01132	0.98552	0.07000	56.150	1.01106	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0710	0.01131	0.98531	0.07100	57.898	1.01123	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0720	0.01130	0.98510	0.07200	59.746	1.01140	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0730	0.01129	0.98489	0.07300	61.698	1.01157	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0740	0.01128	0.98468	0.07400	63.758	1.01174	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0.00000
0.0750	0.01127	0.98447	0.07500	65.930	1.01191	1.00000	8.60301	0.00000	0.00000	0.00000	0.00000	0

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	u
0.0100	0.0141	0.9999	0.0141	71.43	1.0001	1.0000	9.0141	9.9999	0.0141	0.0100
0.0151	0.0151	0.9998	0.0151	66.18	1.0002	0.9999	9.0151	9.9998	0.0151	0.0151
0.0200	0.0200	0.9994	0.0200	50.00	1.0004	0.9996	9.0200	9.9994	0.0200	0.0200
0.0250	0.0250	0.9990	0.0250	40.00	1.0006	0.9994	9.0250	9.9990	0.0250	0.0250
0.0300	0.0300	0.9986	0.0300	33.33	1.0008	0.9992	9.0300	9.9986	0.0300	0.0300
0.0350	0.0350	0.9980	0.0350	28.57	1.0010	0.9990	9.0350	9.9980	0.0350	0.0350
0.0400	0.0400	0.9974	0.0400	25.00	1.0012	0.9988	9.0400	9.9974	0.0400	0.0400
0.0450	0.0450	0.9967	0.0450	22.22	1.0014	0.9986	9.0450	9.9967	0.0450	0.0450
0.0500	0.0500	0.9960	0.0500	20.00	1.0016	0.9984	9.0500	9.9960	0.0500	0.0500
0.0550	0.0550	0.9952	0.0550	18.18	1.0018	0.9982	9.0550	9.9952	0.0550	0.0550
0.0600	0.0600	0.9944	0.0600	16.67	1.0020	0.9980	9.0600	9.9944	0.0600	0.0600
0.0650	0.0650	0.9935	0.0650	15.38	1.0022	0.9978	9.0650	9.9935	0.0650	0.0650
0.0700	0.0700	0.9926	0.0700	14.29	1.0024	0.9976	9.0700	9.9926	0.0700	0.0700
0.0750	0.0750	0.9916	0.0750	13.33	1.0026	0.9974	9.0750	9.9916	0.0750	0.0750
0.0800	0.0800	0.9906	0.0800	12.50	1.0028	0.9972	9.0800	9.9906	0.0800	0.0800
0.0850	0.0850	0.9895	0.0850	11.76	1.0030	0.9970	9.0850	9.9895	0.0850	0.0850
0.0900	0.0900	0.9884	0.0900	11.11	1.0032	0.9968	9.0900	9.9884	0.0900	0.0900
0.0950	0.0950	0.9873	0.0950	10.53	1.0034	0.9966	9.0950	9.9873	0.0950	0.0950
0.1000	0.1000	0.9861	0.1000	10.00	1.0036	0.9964	9.1000	9.9861	0.1000	0.1000
0.1050	0.1050	0.9849	0.1050	9.52	1.0038	0.9962	9.1050	9.9849	0.1050	0.1050
0.1100	0.1100	0.9837	0.1100	9.09	1.0040	0.9960	9.1100	9.9837	0.1100	0.1100
0.1150	0.1150	0.9824	0.1150	8.70	1.0042	0.9958	9.1150	9.9824	0.1150	0.1150
0.1200	0.1200	0.9811	0.1200	8.33	1.0044	0.9956	9.1200	9.9811	0.1200	0.1200
0.1250	0.1250	0.9798	0.1250	8.00	1.0046	0.9954	9.1250	9.9798	0.1250	0.1250
0.1300	0.1300	0.9784	0.1300	7.69	1.0048	0.9952	9.1300	9.9784	0.1300	0.1300
0.1350	0.1350	0.9770	0.1350	7.41	1.0050	0.9950	9.1350	9.9770	0.1350	0.1350
0.1400	0.1400	0.9756	0.1400	7.14	1.0052	0.9948	9.1400	9.9756	0.1400	0.1400
0.1450	0.1450	0.9742	0.1450	6.88	1.0054	0.9946	9.1450	9.9742	0.1450	0.1450
0.1500	0.1500	0.9728	0.1500	6.64	1.0056	0.9944	9.1500	9.9728	0.1500	0.1500
0.1550	0.1550	0.9713	0.1550	6.41	1.0058	0.9942	9.1550	9.9713	0.1550	0.1550
0.1600	0.1600	0.9698	0.1600	6.19	1.0060	0.9940	9.1600	9.9698	0.1600	0.1600
0.1650	0.1650	0.9683	0.1650	6.00	1.0062	0.9938	9.1650	9.9683	0.1650	0.1650
0.1700	0.1700	0.9668	0.1700	5.80	1.0064	0.9936	9.1700	9.9668	0.1700	0.1700
0.1750	0.1750	0.9652	0.1750	5.62	1.0066	0.9934	9.1750	9.9652	0.1750	0.1750
0.1800	0.1800	0.9637	0.1800	5.45	1.0068	0.9932	9.1800	9.9637	0.1800	0.1800
0.1850	0.1850	0.9621	0.1850	5.29	1.0070	0.9930	9.1850	9.9621	0.1850	0.1850
0.1900	0.1900	0.9605	0.1900	5.14	1.0072	0.9928	9.1900	9.9605	0.1900	0.1900
0.1950	0.1950	0.9589	0.1950	5.00	1.0074	0.9926	9.1950	9.9589	0.1950	0.1950
0.2000	0.2000	0.9573	0.2000	4.86	1.0076	0.9924	9.2000	9.9573	0.2000	0.2000
0.2050	0.2050	0.9557	0.2050	4.73	1.0078	0.9922	9.2050	9.9557	0.2050	0.2050
0.2100	0.2100	0.9541	0.2100	4.61	1.0080	0.9920	9.2100	9.9541	0.2100	0.2100
0.2150	0.2150	0.9524	0.2150	4.50	1.0082	0.9918	9.2150	9.9524	0.2150	0.2150
0.2200	0.2200	0.9508	0.2200	4.39	1.0084	0.9916	9.2200	9.9508	0.2200	0.2200
0.2250	0.2250	0.9491	0.2250	4.29	1.0086	0.9914	9.2250	9.9491	0.2250	0.2250
0.2300	0.2300	0.9475	0.2300	4.19	1.0088	0.9912	9.2300	9.9475	0.2300	0.2300
0.2350	0.2350	0.9458	0.2350	4.10	1.0090	0.9910	9.2350	9.9458	0.2350	0.2350
0.2400	0.2400	0.9442	0.2400	4.01	1.0092	0.9908	9.2400	9.9442	0.2400	0.2400
0.2450	0.2450	0.9425	0.2450	3.93	1.0094	0.9906	9.2450	9.9425	0.2450	0.2450
0.2500	0.2500	0.9408	0.2500	3.85	1.0096	0.9904	9.2500	9.9408	0.2500	0.2500
0.2550	0.2550	0.9392	0.2550	3.77	1.0098	0.9902	9.2550	9.9392	0.2550	0.2550
0.2600	0.2600	0.9375	0.2600	3.70	1.0100	0.9900	9.2600	9.9375	0.2600	0.2600
0.2650	0.2650	0.9358	0.2650	3.63	1.0102	0.9898	9.2650	9.9358	0.2650	0.2650
0.2700	0.2700	0.9342	0.2700	3.56	1.0104	0.9896	9.2700	9.9342	0.2700	0.2700
0.2750	0.2750	0.9325	0.2750	3.50	1.0106	0.9894	9.2750	9.9325	0.2750	0.2750
0.2800	0.2800	0.9308	0.2800	3.43	1.0108	0.9892	9.2800	9.9308	0.2800	0.2800
0.2850	0.2850	0.9292	0.2850	3.37	1.0110	0.9890	9.2850	9.9292	0.2850	0.2850
0.2900	0.2900	0.9275	0.2900	3.31	1.0112	0.9888	9.2900	9.9275	0.2900	0.2900
0.2950	0.2950	0.9258	0.2950	3.25	1.0114	0.9886	9.2950	9.9258	0.2950	0.2950
0.3000	0.3000	0.9242	0.3000	3.20	1.0116	0.9884	9.3000	9.9242	0.3000	0.3000

Circular Functions.

x	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
0.0500	0.04998	1000	0.99875	0.5	8.69879	8.68	0.00010	0.0	2 51 53.33
0.0501	0.04998		0.99875		8.69879	8.68	0.00010		2 52 53.87
0.0502	0.05000		0.99871		8.69871	8.68	0.00010		2 52 54.40
0.0503	0.05002		0.99867		8.69867	8.68	0.00010		2 52 54.93
0.0504	0.05005		0.99863		8.69863	8.68	0.00010		2 53 55.46
0.0505	0.05008	1000	0.99859	0.5	8.69859	8.68	0.00010	0.0	2 53 55.99
0.0506	0.05010		0.99855		8.69855	8.68	0.00010		2 53 56.52
0.0507	0.05013		0.99851		8.69851	8.68	0.00010		2 53 57.05
0.0508	0.05016		0.99847		8.69847	8.68	0.00010		2 53 57.58
0.0509	0.05018		0.99843		8.69843	8.68	0.00010		2 53 58.11
0.0510	0.05021	1000	0.99839	0.5	8.69839	8.68	0.00010	0.0	2 53 58.64
0.0511	0.05023		0.99835		8.69835	8.68	0.00010		2 53 59.17
0.0512	0.05026		0.99831		8.69831	8.68	0.00010		2 53 59.70
0.0513	0.05028		0.99827		8.69827	8.68	0.00010		2 53 60.23
0.0514	0.05031		0.99823		8.69823	8.68	0.00010		2 53 60.76
0.0515	0.05034	1000	0.99819	0.5	8.69819	8.68	0.00010	0.0	2 53 61.29
0.0516	0.05036		0.99815		8.69815	8.68	0.00010		2 53 61.82
0.0517	0.05039		0.99811		8.69811	8.68	0.00010		2 53 62.35
0.0518	0.05041		0.99807		8.69807	8.68	0.00010		2 53 62.88
0.0519	0.05044		0.99803		8.69803	8.68	0.00010		2 53 63.41
0.0520	0.05047	1000	0.99799	0.5	8.69799	8.68	0.00010	0.0	2 53 63.94
0.0521	0.05049		0.99795		8.69795	8.68	0.00010		2 53 64.47
0.0522	0.05052		0.99791		8.69791	8.68	0.00010		2 53 65.00
0.0523	0.05054		0.99787		8.69787	8.68	0.00010		2 53 65.53
0.0524	0.05057		0.99783		8.69783	8.68	0.00010		2 53 66.06
0.0525	0.05060	1000	0.99779	0.5	8.69779	8.68	0.00010	0.0	2 53 66.59
0.0526	0.05062		0.99775		8.69775	8.68	0.00010		2 53 67.12
0.0527	0.05065		0.99771		8.69771	8.68	0.00010		2 53 67.65
0.0528	0.05067		0.99767		8.69767	8.68	0.00010		2 53 68.18
0.0529	0.05070		0.99763		8.69763	8.68	0.00010		2 53 68.71
0.0530	0.05073	1000	0.99759	0.5	8.69759	8.68	0.00010	0.0	2 53 69.24
0.0531	0.05075		0.99755		8.69755	8.68	0.00010		2 53 69.77
0.0532	0.05078		0.99751		8.69751	8.68	0.00010		2 53 70.30
0.0533	0.05080		0.99747		8.69747	8.68	0.00010		2 53 70.83
0.0534	0.05083		0.99743		8.69743	8.68	0.00010		2 53 71.36
0.0535	0.05086	1000	0.99739	0.5	8.69739	8.68	0.00010	0.0	2 53 71.89
0.0536	0.05088		0.99735		8.69735	8.68	0.00010		2 53 72.42
0.0537	0.05091		0.99731		8.69731	8.68	0.00010		2 53 72.95
0.0538	0.05093		0.99727		8.69727	8.68	0.00010		2 53 73.48
0.0539	0.05096		0.99723		8.69723	8.68	0.00010		2 53 74.01
0.0540	0.05099	1000	0.99719	0.5	8.69719	8.68	0.00010	0.0	2 53 74.54
0.0541	0.05101		0.99715		8.69715	8.68	0.00010		2 53 75.07
0.0542	0.05104		0.99711		8.69711	8.68	0.00010		2 53 75.60
0.0543	0.05106		0.99707		8.69707	8.68	0.00010		2 53 76.13
0.0544	0.05109		0.99703		8.69703	8.68	0.00010		2 53 76.66
0.0545	0.05112	1000	0.99699	0.5	8.69699	8.68	0.00010	0.0	2 53 77.19
0.0546	0.05114		0.99695		8.69695	8.68	0.00010		2 53 77.72
0.0547	0.05117		0.99691		8.69691	8.68	0.00010		2 53 78.25
0.0548	0.05119		0.99687		8.69687	8.68	0.00010		2 53 78.78
0.0549	0.05122		0.99683		8.69683	8.68	0.00010		2 53 79.31
0.0550	0.05125	1000	0.99679	0.5	8.69679	8.68	0.00010	0.0	2 53 79.84
0.0551	0.05127		0.99675		8.69675	8.68	0.00010		2 53 80.37
0.0552	0.05130		0.99671		8.69671	8.68	0.00010		2 53 80.90
0.0553	0.05132		0.99667		8.69667	8.68	0.00010		2 53 81.43
0.0554	0.05135	1000	0.99663	0.5	8.69663	8.68	0.00010	0.0	2 53 81.96
0.0555	0.05137		0.99659		8.69659	8.68	0.00010		2 53 82.49
0.0556	0.05140		0.99655		8.69655	8.68	0.00010		2 53 83.02
0.0557	0.05142		0.99651		8.69651	8.68	0.00010		2 53 83.55
0.0558	0.05145		0.99647		8.69647	8.68	0.00010		2 53 84.08
0.0559	0.05148	1000	0.99643	0.5	8.69643	8.68	0.00010	0.0	2 53 84.61
0.0560	0.05150		0.99639		8.69639	8.68	0.00010		2 53 85.14
0.0561	0.05153		0.99635		8.69635	8.68	0.00010		2 53 85.67
0.0562	0.05155		0.99631		8.69631	8.68	0.00010		2 53 86.20
0.0563	0.05158		0.99627		8.69627	8.68	0.00010		2 53 86.73
0.0564	0.05160	1000	0.99623	0.5	8.69623	8.68	0.00010	0.0	2 53 87.26
0.0565	0.05163		0.99619		8.69619	8.68	0.00010		2 53 87.79
0.0566	0.05165		0.99615		8.69615	8.68	0.00010		2 53 88.32
0.0567	0.05168		0.99611		8.69611	8.68	0.00010		2 53 88.85
0.0568	0.05170		0.99607		8.69607	8.68	0.00010		2 53 89.38
0.0569	0.05173	1000	0.99603	0.5	8.69603	8.68	0.00010	0.0	2 53 89.91
0.0570	0.05175		0.99599		8.69599	8.68	0.00010		2 53 90.44
0.0571	0.05178		0.99595		8.69595	8.68	0.00010		2 53 90.97
0.0572	0.05180		0.99591		8.69591	8.68	0.00010		2 53 91.50
0.0573	0.05183		0.99587		8.69587	8.68	0.00010		2 53 92.03
0.0574	0.05185	1000	0.99583	0.5	8.69583	8.68	0.00010	0.0	2 53 92.56
0.0575	0.05188		0.99579		8.69579	8.68	0.00010		2 53 93.09
0.0576	0.05190		0.99575		8.69575	8.68	0.00010		2 53 93.62
0.0577	0.05193		0.99571		8.69571	8.68	0.00010		2 53 94.15
0.0578	0.05195		0.99567		8.69567	8.68	0.00010		2 53 94.68
0.0579	0.05198	1000	0.99563	0.5	8.69563	8.68	0.00010	0.0	2 53 95.21
0.0580	0.05200		0.99559		8.69559	8.68	0.00010		2 53 95.74
0.0581	0.05203		0.99555		8.69555	8.68	0.00010		2 53 96.27
0.0582	0.05205		0.99551		8.69551	8.68	0.00010		2 53 96.80
0.0583	0.05208		0.99547		8.69547	8.68	0.00010		2 53 97.33
0.0584	0.05210	1000	0.99543	0.5	8.69543	8.68	0.00010	0.0	2 53 97.86
0.0585	0.05213		0.99539		8.69539	8.68	0.00010		2 53 98.39
0.0586	0.05215		0.99535		8.69535	8.68	0.00010		2 53 98.92
0.0587	0.05218		0.99531		8.69531	8.68	0.00010		2 53 99.45
0.0588	0.05220		0.99527		8.69527	8.68	0.00010		2 53 99.98
0.0589	0.05223	1000	0.99523	0.5	8.69523	8.68	0.00010	0.0	2 54 00.51
0.0590	0.05225		0.99519		8.69519	8.68	0.00010		2 54 01.04
0.0591	0.05228		0.99515		8.69515	8.68	0.00010		2 54 01.57
0.0592	0.05230		0.99511		8.69511	8.68	0.00010		2 54 02.10
0.0593	0.05233		0.99507		8.69507	8.68	0.00010		2 54 02.63
0.0594	0.05235	1000	0.99503	0.5	8.69503	8.68	0.00010	0.0	2 54 03.16
0.0595	0.05238		0.99499		8.69499	8.68	0.00010		2 54 03.69
0.0596	0.05240		0.99495		8.69495	8.68	0.00010		2 54 04.22
0.0597	0.05243		0.99491		8.69491	8.68	0.00010		2 54 04.75
0.0598	0.05245		0.99487		8.69487	8.68	0.00010		2 54 05.28
0.0599	0.05248	1000	0.99483	0.5	8.69483	8.68	0.00010	0.0	2 54 05.81
0.0600	0.05250		0.99479		8.69479	8.68	0.00010		2 54 06.34

SMITHSONIAN TABLES

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
0.0550	0.055197	10.01	0.998419	0.5	8.74014	78.0	0.00034	0.2	3 09 04.56
0.0551	0.055197		0.998418	0.01	7.9093	78.7	0.00034		3 09 25.19
0.0552	0.055197		0.998418		7.4172	78.6	0.00034		3 09 45.82
0.0553	0.055197		0.998417		7.1250	78.5	0.00034		3 10 05.44
0.0554	0.055197		0.998417		7.0329	78.3	0.00033		3 10 27.07
0.0555	0.055197	10.01	0.998416	0.5	8.74009	78.2	0.00033	0.2	3 10 47.70
0.0556	0.055197		0.998415		7.9093	78.0	0.00033		3 11 08.32
0.0557	0.055197		0.998415		7.4172	77.9	0.00033		3 11 28.95
0.0558	0.055197		0.998414		7.0329	77.7	0.00032		3 11 49.58
0.0559	0.055197		0.998414		7.0329	77.6	0.00032		3 12 10.20
0.0560	0.055197	10.01	0.998413	0.5	8.74006	77.5	0.00032	0.2	3 12 30.83
0.0561	0.055197		0.998413		7.9093	77.3	0.00032		3 12 51.46
0.0562	0.055197		0.998412		7.4172	77.2	0.00031		3 13 12.08
0.0563	0.055197		0.998412		7.0329	77.1	0.00031		3 13 32.71
0.0564	0.055197		0.998411		7.0329	76.9	0.00031		3 13 53.34
0.0565	0.055197	10.01	0.998410	0.5	8.74002	76.8	0.00031	0.2	3 14 13.96
0.0566	0.055197		0.998410		7.9093	76.6	0.00030		3 14 34.59
0.0567	0.055197		0.998409		7.4172	76.5	0.00030		3 14 55.21
0.0568	0.055197		0.998409		7.0329	76.4	0.00030		3 15 15.84
0.0569	0.055197		0.998408		7.0329	76.2	0.00030		3 15 36.47
0.0570	0.055197	10.01	0.998408	0.5	8.73999	76.1	0.00030	0.2	3 15 57.09
0.0571	0.055197		0.998407		7.9093	76.0	0.00030		3 16 17.72
0.0572	0.055197		0.998407		7.4172	75.8	0.00029		3 16 38.35
0.0573	0.055197		0.998406		7.0329	75.7	0.00029		3 16 58.97
0.0574	0.055197		0.998405		7.0329	75.6	0.00029		3 17 19.60
0.0575	0.055197	10.01	0.998405	0.5	8.73995	75.5	0.00029	0.2	3 17 40.23
0.0576	0.055197		0.998404		7.9093	75.3	0.00028	0.3	3 18 00.85
0.0577	0.055197		0.998404		7.4172	75.2	0.00028		3 18 21.48
0.0578	0.055197		0.998403		7.0329	75.1	0.00027		3 18 42.11
0.0579	0.055197		0.998402		7.0329	74.9	0.00027		3 19 02.73
0.0580	0.055197	10.01	0.998402	0.5	8.73991	74.8	0.00027	0.3	3 19 23.36
0.0581	0.055197		0.998401		7.9093	74.7	0.00027		3 19 43.99
0.0582	0.055197		0.998401		7.4172	74.5	0.00026		3 20 04.61
0.0583	0.055197		0.998400		7.0329	74.4	0.00026		3 20 25.24
0.0584	0.055197		0.998399		7.0329	74.3	0.00026		3 20 45.86
0.0585	0.055197	10.01	0.998399	0.5	8.73987	74.2	0.00026	0.3	3 21 06.49
0.0586	0.055197		0.998398		7.9093	74.0	0.00025		3 21 27.12
0.0587	0.055197		0.998398		7.4172	73.9	0.00025		3 21 47.74
0.0588	0.055197		0.998397		7.0329	73.8	0.00025		3 22 08.37
0.0589	0.055197		0.998397		7.0329	73.6	0.00025		3 22 29.00
0.0590	0.055197	10.01	0.998397	0.5	8.73983	73.5	0.00024	0.3	3 22 49.62
0.0591	0.055197		0.998396		7.9093	73.4	0.00024		3 23 10.25
0.0592	0.055197		0.998395		7.4172	73.3	0.00024		3 23 30.88
0.0593	0.055197		0.998394		7.0329	73.2	0.00024		3 23 51.50
0.0594	0.055197		0.998394		7.0329	73.0	0.00023		3 24 12.13
0.0595	0.055197	10.01	0.998393	0.5	8.73979	72.9	0.00023	0.3	3 24 32.76
0.0596	0.055197		0.998392		7.9093	72.8	0.00023		3 24 53.38
0.0597	0.055197		0.998392		7.4172	72.7	0.00023		3 25 14.01
0.0598	0.055197		0.998391		7.0329	72.5	0.00022		3 25 34.64
0.0599	0.055197		0.998391		7.0329	72.4	0.00022		3 25 55.26
0.0600	0.055197	10.01	0.998390	0.5	8.73975	72.3	0.00022	0.3	3 26 15.89
u	$-\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \frac{\sin u}{u}$	$= F_3'$	$\log \frac{\cos u}{u}$	$= F_4'$	u

Circular Functions.

x	$\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	π
0.0000 .0001 .0002 .0003 .0004	0.00000 .00000 .00000 .00000 .00000	10.0	0.99980 .99980 .99980 .99980 .99980	0.0	8.77770 .77780 .77781 .77781 .77781	7.4	9.99992 .99992 .99992 .99992 .99992	0.3	1.57 15.71 1.57 16.51 1.57 17.11 1.57 17.77 1.57 18.20
0.0005 .0006 .0007 .0008 .0009	0.00000 .00000 .00000 .00000 .00000	10.0	0.99981 .99981 .99981 .99981 .99981	0.0	8.77810 .77811 .77811 .77811 .77811	7.4	9.99993 .99993 .99993 .99993 .99993	0.3	1.57 19.02 1.57 19.68 1.57 20.27 1.57 20.90 1.57 21.53
0.0010 .0011 .0012 .0013 .0014	0.00000 .00000 .00000 .00000 .00000	10.0	0.99981 .99981 .99981 .99981 .99981	0.0	8.77850 .77857 .77858 .77858 .77858	7.4	9.99994 .99994 .99994 .99994 .99994	0.3	1.57 22.15 1.57 22.78 1.57 23.41 1.57 24.03 1.57 24.66
0.0015 .0016 .0017 .0018 .0019	0.00000 .00000 .00000 .00000 .00000	10.0	0.99981 .99981 .99981 .99981 .99981	0.0	8.77890 .77891 .77891 .77891 .77891	7.4	9.99995 .99995 .99995 .99995 .99995	0.3	1.57 25.29 1.57 25.91 1.57 26.54 1.57 27.17 1.57 27.79
0.0020 .0021 .0022 .0023 .0024	0.00000 .00000 .00000 .00000 .00000	10.0	0.99980 .99980 .99980 .99980 .99980	0.0	8.77921 .77921 .77921 .77921 .77921	7.4	9.99996 .99996 .99996 .99996 .99996	0.3	1.57 28.42 1.57 29.04 1.57 29.67 1.57 30.29 1.57 30.92
0.0025 .0026 .0027 .0028 .0029	0.00000 .00000 .00000 .00000 .00000	10.0	0.99980 .99980 .99980 .99980 .99980	0.0	8.77950 .77950 .77950 .77950 .77950	7.4	9.99997 .99997 .99997 .99997 .99997	0.3	1.57 31.55 1.57 32.18 1.57 32.80 1.57 33.43 1.57 34.06
0.0030 .0031 .0032 .0033 .0034	0.00000 .00000 .00000 .00000 .00000	10.0	0.99980 .99980 .99980 .99980 .99980	0.0	8.77980 .77981 .77981 .77981 .77981	7.4	9.99998 .99998 .99998 .99998 .99998	0.3	1.57 34.68 1.57 35.31 1.57 35.94 1.57 36.57 1.57 37.19
0.0035 .0036 .0037 .0038 .0039	0.00000 .00000 .00000 .00000 .00000	10.0	0.99979 .99979 .99979 .99979 .99979	0.0	8.78010 .78010 .78010 .78010 .78010	7.4	9.99999 .99999 .99999 .99999 .99999	0.3	1.57 37.82 1.57 38.44 1.57 39.07 1.57 39.69 1.57 40.32
0.0040 .0041 .0042 .0043 .0044	0.00000 .00000 .00000 .00000 .00000	10.0	0.99979 .99979 .99979 .99979 .99979	0.0	8.78040 .78041 .78041 .78041 .78041	7.4	9.99999 .99999 .99999 .99999 .99999	0.3	1.57 40.95 1.57 41.57 1.57 42.20 1.57 42.83 1.57 43.45
0.0045 .0046 .0047 .0048 .0049	0.00000 .00000 .00000 .00000 .00000	10.0	0.99979 .99979 .99979 .99979 .99979	0.0	8.78070 .78071 .78071 .78071 .78071	7.4	9.99999 .99999 .99999 .99999 .99999	0.3	1.57 44.08 1.57 44.71 1.57 45.33 1.57 45.96 1.57 46.59
0.0050	0.00000	10.0	0.99979	0.0	8.78100	7.4	9.99999	0.3	1.57 47.21
x	$-\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	π

SMITHSONIAN TABLES

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	u
0.0050	0.00498	0.99998	0.00500	0.6	8.81261	66.7	9.00008	0.3	3 43 27.21	
0.0051	0.00500	0.99998	0.00502	0.7	8.81267	66.6	9.00008		3 43 47.84	
0.0052	0.00502	0.99998	0.00504		8.81274	66.5	9.00008		3 44 08.47	
0.0053	0.00505	0.99997	0.00507		8.81280	66.4	9.00007		3 44 29.09	
0.0054	0.00507	0.99997	0.00510		8.81287	66.3	9.00007		3 44 49.72	
0.0055	0.00510	0.99997	0.00512	0.7	8.81293	66.2	9.00007	0.3	3 45 10.34	
0.0056	0.00512	0.99997	0.00515		8.81299	66.1	9.00006		3 45 30.97	
0.0057	0.00515	0.99996	0.00517		8.81306	66.0	9.00006		3 45 51.60	
0.0058	0.00517	0.99996	0.00520		8.81312	65.9	9.00005		3 46 12.22	
0.0059	0.00519	0.99996	0.00522		8.81319	65.8	9.00005		3 46 32.85	
0.0060	0.00522	0.99995	0.00525	0.7	8.81325	65.7	9.00005	0.3	3 46 53.48	
0.0061	0.00524	0.99995	0.00527		8.81332	65.6	9.00005		3 47 14.10	
0.0062	0.00526	0.99995	0.00530		8.81338	65.5	9.00005		3 47 34.73	
0.0063	0.00528	0.99994	0.00532		8.81345	65.4	9.00004		3 47 55.35	
0.0064	0.00530	0.99994	0.00535		8.81351	65.3	9.00004		3 48 15.98	
0.0065	0.00533	0.99993	0.00537	0.7	8.81357	65.2	9.00004	0.3	3 48 36.61	
0.0066	0.00535	0.99993	0.00540		8.81364	65.1	9.00004		3 48 57.24	
0.0067	0.00537	0.99993	0.00542		8.81370	65.0	9.00003		3 49 17.87	
0.0068	0.00540	0.99992	0.00545		8.81377	64.9	9.00003		3 49 38.49	
0.0069	0.00542	0.99992	0.00547		8.81383	64.8	9.00003		3 49 59.12	
0.0070	0.00545	0.99991	0.00550	0.7	8.81389	64.7	9.00002	0.3	3 50 19.74	
0.0071	0.00547	0.99991	0.00552		8.81396	64.6	9.00002		3 50 40.37	
0.0072	0.00549	0.99991	0.00555		8.81402	64.5	9.00002		3 51 00.99	
0.0073	0.00552	0.99990	0.00557		8.81409	64.4	9.00002		3 51 21.62	
0.0074	0.00554	0.99990	0.00560		8.81415	64.3	9.00001		3 51 42.25	
0.0075	0.00557	0.99989	0.00562	0.7	8.81421	64.2	9.00001	0.3	3 52 02.87	
0.0076	0.00559	0.99989	0.00565		8.81428	64.1	9.00001		3 52 23.50	
0.0077	0.00561	0.99989	0.00567		8.81434	64.0	9.00000		3 52 44.13	
0.0078	0.00564	0.99988	0.00570		8.81441	63.9	9.99999		3 53 04.75	
0.0079	0.00566	0.99988	0.00572		8.81447	63.8	9.99999		3 53 25.38	
0.0080	0.00569	0.99987	0.00575	0.7	8.81453	63.7	9.99999	0.3	3 53 46.01	
0.0081	0.00571	0.99987	0.00577		8.81460	63.6	9.99999		3 54 06.63	
0.0082	0.00573	0.99987	0.00580		8.81466	63.5	9.99999		3 54 27.26	
0.0083	0.00576	0.99986	0.00582		8.81473	63.4	9.99998		3 54 47.89	
0.0084	0.00578	0.99986	0.00585		8.81479	63.3	9.99998		3 55 08.51	
0.0085	0.00581	0.99985	0.00587	0.7	8.81485	63.2	9.99998	0.3	3 55 29.14	
0.0086	0.00583	0.99985	0.00590		8.81492	63.1	9.99998		3 55 49.77	
0.0087	0.00586	0.99984	0.00592		8.81498	63.0	9.99997		3 56 10.40	
0.0088	0.00588	0.99984	0.00595		8.81505	62.9	9.99997		3 56 31.02	
0.0089	0.00591	0.99983	0.00597		8.81511	62.8	9.99997		3 56 51.65	
0.0090	0.00593	0.99983	0.00600	0.7	8.81518	62.7	9.99997	0.3	3 57 12.27	
0.0091	0.00596	0.99982	0.00602		8.81524	62.6	9.99996		3 57 32.90	
0.0092	0.00598	0.99982	0.00605		8.81531	62.5	9.99996		3 57 53.52	
0.0093	0.00601	0.99981	0.00607		8.81537	62.4	9.99996		3 58 14.15	
0.0094	0.00603	0.99981	0.00610		8.81544	62.3	9.99995		3 58 34.78	
0.0095	0.00606	0.99980	0.00612	0.7	8.81550	62.2	9.99995	0.3	3 58 55.40	
0.0096	0.00608	0.99980	0.00615		8.81557	62.1	9.99995		3 59 16.03	
0.0097	0.00611	0.99979	0.00617		8.81563	62.0	9.99994		3 59 36.66	
0.0098	0.00613	0.99979	0.00620		8.81570	61.9	9.99994		3 59 57.28	
0.0099	0.00616	0.99978	0.00622		8.81576	61.8	9.99994		4 00 17.91	
0.0700	0.06994	0.99975	0.07000	0.7	8.84474	61.6	9.99994	0.3	4 00 38.54	
u	$-1 \sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	u

Circular Functions.

[illegible]

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$	$\log \csc u$
0.0750	0.07493	0.99710	0.07516	13.321	1.00289	1.00000	8.87465	57.8	9.99879	0.2	4 17 59.85	
0.0751	0.07503	0.99718	0.07524	13.319	1.00287	1.00000	8.87523	57.7	9.99877	4 18 10.42		
0.0752	0.07513	0.99717	0.07531	13.317	1.00285	1.00000	8.87581	57.6	9.99875	4 18 21.11		
0.0753	0.07523	0.99715	0.07540	13.315	1.00283	1.00000	8.87639	57.5	9.99873	4 18 31.74		
0.0754	0.07533	0.99714	0.07549	13.313	1.00281	1.00000	8.87697	57.4	9.99871	4 19 12.37		
0.0755	0.07543	0.99715	0.07553	13.311	1.00279	1.00000	8.87755	57.4	9.99870	4 19 33.90		
0.0756	0.07553	0.99714	0.07563	13.309	1.00277	1.00000	8.87813	57.3	9.99868	4 19 55.42		
0.0757	0.07563	0.99714	0.07573	13.307	1.00275	1.00000	8.87871	57.3	9.99867	4 20 14.25		
0.0758	0.07573	0.99713	0.07583	13.305	1.00273	1.00000	8.87929	57.2	9.99865	4 20 34.87		
0.0759	0.07583	0.99712	0.07593	13.303	1.00271	1.00000	8.87987	57.1	9.99863	4 20 55.50		
0.0760	0.07593	0.99711	0.07603	13.301	1.00269	1.00000	8.88045	57.0	9.99861	4 21 16.13		
0.0761	0.07603	0.99711	0.07613	13.299	1.00267	1.00000	8.88103	57.0	9.99859	4 21 36.75		
0.0762	0.07613	0.99710	0.07623	13.297	1.00265	1.00000	8.88161	56.9	9.99857	4 21 57.38		
0.0763	0.07623	0.99709	0.07633	13.295	1.00263	1.00000	8.88219	56.8	9.99855	4 22 18.00		
0.0764	0.07633	0.99708	0.07643	13.293	1.00261	1.00000	8.88277	56.7	9.99853	4 22 38.63		
0.0765	0.07643	0.99708	0.07653	13.291	1.00259	1.00000	8.88335	56.7	9.99851	4 22 59.26		
0.0766	0.07653	0.99707	0.07663	13.289	1.00257	1.00000	8.88393	56.6	9.99849	4 23 19.88		
0.0767	0.07663	0.99706	0.07673	13.287	1.00255	1.00000	8.88451	56.5	9.99847	4 23 40.51		
0.0768	0.07673	0.99705	0.07683	13.285	1.00253	1.00000	8.88509	56.4	9.99845	4 24 01.14		
0.0769	0.07683	0.99704	0.07693	13.283	1.00251	1.00000	8.88567	56.4	9.99843	4 24 21.77		
0.0770	0.07693	0.99704	0.07703	13.281	1.00249	1.00000	8.88625	56.3	9.99841	4 24 42.39		
0.0771	0.07703	0.99703	0.07713	13.279	1.00247	1.00000	8.88683	56.2	9.99839	4 25 03.02		
0.0772	0.07713	0.99702	0.07723	13.277	1.00245	1.00000	8.88741	56.1	9.99837	4 25 23.64		
0.0773	0.07723	0.99701	0.07733	13.275	1.00243	1.00000	8.88799	56.1	9.99835	4 25 44.27		
0.0774	0.07733	0.99701	0.07743	13.273	1.00241	1.00000	8.88857	56.0	9.99833	4 26 04.90		
0.0775	0.07743	0.99700	0.07753	13.271	1.00239	1.00000	8.88915	55.9	9.99831	4 26 25.52		
0.0776	0.07753	0.99699	0.07763	13.269	1.00237	1.00000	8.88973	55.8	9.99829	4 26 46.15		
0.0777	0.07763	0.99698	0.07773	13.267	1.00235	1.00000	8.89031	55.8	9.99827	4 27 06.78		
0.0778	0.07773	0.99697	0.07783	13.265	1.00233	1.00000	8.89089	55.7	9.99825	4 27 27.40		
0.0779	0.07783	0.99697	0.07793	13.263	1.00231	1.00000	8.89147	55.6	9.99823	4 27 48.03		
0.0780	0.07793	0.99696	0.07803	13.261	1.00229	1.00000	8.89205	55.6	9.99821	4 28 08.65		
0.0781	0.07803	0.99695	0.07813	13.259	1.00227	1.00000	8.89263	55.5	9.99819	4 28 29.28		
0.0782	0.07813	0.99694	0.07823	13.257	1.00225	1.00000	8.89321	55.4	9.99817	4 28 49.91		
0.0783	0.07823	0.99693	0.07833	13.255	1.00223	1.00000	8.89379	55.4	9.99815	4 29 10.53		
0.0784	0.07833	0.99693	0.07843	13.253	1.00221	1.00000	8.89437	55.3	9.99813	4 29 31.16		
0.0785	0.07843	0.99692	0.07853	13.251	1.00219	1.00000	8.89495	55.2	9.99811	4 29 51.79		
0.0786	0.07853	0.99691	0.07863	13.249	1.00217	1.00000	8.89553	55.1	9.99809	4 30 12.41		
0.0787	0.07863	0.99690	0.07873	13.247	1.00215	1.00000	8.89611	55.1	9.99807	4 30 33.04		
0.0788	0.07873	0.99689	0.07883	13.245	1.00213	1.00000	8.89669	55.0	9.99805	4 30 53.67		
0.0789	0.07883	0.99689	0.07893	13.243	1.00211	1.00000	8.89727	54.9	9.99803	4 31 14.29		
0.0790	0.07893	0.99688	0.07903	13.241	1.00209	1.00000	8.89785	54.9	9.99801	4 31 34.92		
0.0791	0.07903	0.99687	0.07913	13.239	1.00207	1.00000	8.89843	54.8	9.99799	4 31 55.55		
0.0792	0.07913	0.99686	0.07923	13.237	1.00205	1.00000	8.89901	54.7	9.99797	4 32 16.17		
0.0793	0.07923	0.99685	0.07933	13.235	1.00203	1.00000	8.89959	54.7	9.99795	4 32 36.80		
0.0794	0.07933	0.99685	0.07943	13.233	1.00201	1.00000	8.90017	54.6	9.99793	4 32 57.43		
0.0795	0.07943	0.99684	0.07953	13.231	1.00199	1.00000	8.90075	54.6	9.99791	4 33 18.05		
0.0796	0.07953	0.99683	0.07963	13.229	1.00197	1.00000	8.90133	54.4	9.99789	4 33 38.68		
0.0797	0.07963	0.99682	0.07973	13.227	1.00195	1.00000	8.90191	54.4	9.99787	4 33 59.31		
0.0798	0.07973	0.99681	0.07983	13.225	1.00193	1.00000	8.90249	54.3	9.99785	4 34 19.93		
0.0799	0.07983	0.99681	0.07993	13.223	1.00191	1.00000	8.90307	54.2	9.99783	4 34 40.56		
0.0800	0.07993	0.99680	0.08003	13.221	1.00189	1.00000	8.90365	54.2	9.99781	4 35 01.18		
u	$-\sin u$	$\cos u$	$-\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$	$\log \csc u$

Circular Functions.

θ	$\sin \theta$	$\sin^2 \theta$	$\cos \theta$	$\cos^2 \theta$	$\log \sin \theta$	$\log \cos \theta$	$\log \tan \theta$	θ
0.0000	0.00000	10.00	0.99999	0.99998	8.301030	5.40	0.00000	0.0
0.0001	0.00010		0.99990	0.99980	8.301037	5.41	0.00010	4.35 01.00
0.0002	0.00040		0.99980	0.99960	8.301044	5.42	0.00020	4.35 21.81
0.0003	0.00090		0.99970	0.99940	8.301051	5.43	0.00030	4.35 42.64
0.0004	0.00160		0.99960	0.99920	8.301058	5.44	0.00040	4.35 63.49
0.0005	0.00250	10.00	0.99950	0.99900	8.301065	5.45	0.00050	4.36 84.32
0.0006	0.00360		0.99940	0.99880	8.301072	5.46	0.00060	4.37 05.14
0.0007	0.00490		0.99930	0.99860	8.301079	5.47	0.00070	4.37 25.97
0.0008	0.00640		0.99920	0.99840	8.301086	5.48	0.00080	4.37 46.80
0.0009	0.00810		0.99910	0.99820	8.301093	5.49	0.00090	4.37 67.62
0.0010	0.00100	10.00	0.99900	0.99800	8.301100	5.50	0.00100	4.38 88.45
0.0011	0.00121		0.99890	0.99780	8.301107	5.51	0.00110	4.39 09.28
0.0012	0.00144		0.99880	0.99760	8.301114	5.52	0.00120	4.39 30.11
0.0013	0.00169		0.99870	0.99740	8.301121	5.53	0.00130	4.39 50.94
0.0014	0.00196		0.99860	0.99720	8.301128	5.54	0.00140	4.40 71.77
0.0015	0.00225	10.00	0.99850	0.99700	8.301135	5.55	0.00150	4.40 92.60
0.0016	0.00256		0.99840	0.99680	8.301142	5.56	0.00160	4.41 13.43
0.0017	0.00289		0.99830	0.99660	8.301149	5.57	0.00170	4.41 34.26
0.0018	0.00324		0.99820	0.99640	8.301156	5.58	0.00180	4.41 55.09
0.0019	0.00361		0.99810	0.99620	8.301163	5.59	0.00190	4.42 15.92
0.0020	0.00400	10.00	0.99800	0.99600	8.301170	5.60	0.00200	4.42 36.75
0.0021	0.00441		0.99790	0.99580	8.301177	5.61	0.00210	4.42 57.58
0.0022	0.00484		0.99780	0.99560	8.301184	5.62	0.00220	4.43 18.41
0.0023	0.00529		0.99770	0.99540	8.301191	5.63	0.00230	4.43 39.24
0.0024	0.00576		0.99760	0.99520	8.301198	5.64	0.00240	4.43 60.07
0.0025	0.00625	10.00	0.99750	0.99500	8.301205	5.65	0.00250	4.43 80.90
0.0026	0.00676		0.99740	0.99480	8.301212	5.66	0.00260	4.44 01.73
0.0027	0.00729		0.99730	0.99460	8.301219	5.67	0.00270	4.44 22.56
0.0028	0.00784		0.99720	0.99440	8.301226	5.68	0.00280	4.44 43.39
0.0029	0.00841		0.99710	0.99420	8.301233	5.69	0.00290	4.44 64.22
0.0030	0.00900	10.00	0.99700	0.99400	8.301240	5.70	0.00300	4.44 85.05
0.0031	0.00961		0.99690	0.99380	8.301247	5.71	0.00310	4.45 05.88
0.0032	0.01024		0.99680	0.99360	8.301254	5.72	0.00320	4.45 26.71
0.0033	0.01089		0.99670	0.99340	8.301261	5.73	0.00330	4.45 47.54
0.0034	0.01156		0.99660	0.99320	8.301268	5.74	0.00340	4.45 68.37
0.0035	0.01225	10.00	0.99650	0.99300	8.301275	5.75	0.00350	4.45 89.20
0.0036	0.01296		0.99640	0.99280	8.301282	5.76	0.00360	4.46 10.03
0.0037	0.01369		0.99630	0.99260	8.301289	5.77	0.00370	4.46 30.86
0.0038	0.01444		0.99620	0.99240	8.301296	5.78	0.00380	4.46 51.69
0.0039	0.01521		0.99610	0.99220	8.301303	5.79	0.00390	4.46 72.52
0.0040	0.01600	10.00	0.99600	0.99200	8.301310	5.80	0.00400	4.46 93.35
0.0041	0.01681		0.99590	0.99180	8.301317	5.81	0.00410	4.47 14.18
0.0042	0.01764		0.99580	0.99160	8.301324	5.82	0.00420	4.47 35.01
0.0043	0.01849		0.99570	0.99140	8.301331	5.83	0.00430	4.47 55.84
0.0044	0.01936		0.99560	0.99120	8.301338	5.84	0.00440	4.47 76.67
0.0045	0.02025	10.00	0.99550	0.99100	8.301345	5.85	0.00450	4.47 97.50
0.0046	0.02116		0.99540	0.99080	8.301352	5.86	0.00460	4.48 18.33
0.0047	0.02209		0.99530	0.99060	8.301359	5.87	0.00470	4.48 39.16
0.0048	0.02304		0.99520	0.99040	8.301366	5.88	0.00480	4.48 60.00
0.0049	0.02401		0.99510	0.99020	8.301373	5.89	0.00490	4.48 80.83
0.0050	0.02500	10.00	0.99500	0.99000	8.301380	5.90	0.00500	4.49 01.66
0.0051	0.02601		0.99490	0.98980	8.301387	5.91	0.00510	4.49 22.50
0.0052	0.02704		0.99480	0.98960	8.301394	5.92	0.00520	4.49 43.33
0.0053	0.02809		0.99470	0.98940	8.301401	5.93	0.00530	4.49 64.16
0.0054	0.02916		0.99460	0.98920	8.301408	5.94	0.00540	4.49 85.00
0.0055	0.03025	10.00	0.99450	0.98900	8.301415	5.95	0.00550	4.50 05.83
0.0056	0.03136		0.99440	0.98880	8.301422	5.96	0.00560	4.50 26.66
0.0057	0.03249		0.99430	0.98860	8.301429	5.97	0.00570	4.50 47.50
0.0058	0.03364		0.99420	0.98840	8.301436	5.98	0.00580	4.50 68.33
0.0059	0.03481		0.99410	0.98820	8.301443	5.99	0.00590	4.50 89.16
0.0060	0.03600	10.00	0.99400	0.98800	8.301450	6.00	0.00600	4.51 10.00
0.0061	0.03721		0.99390	0.98780	8.301457	6.01	0.00610	4.51 30.83
0.0062	0.03844		0.99380	0.98760	8.301464	6.02	0.00620	4.51 51.66
0.0063	0.03969		0.99370	0.98740	8.301471	6.03	0.00630	4.51 72.50
0.0064	0.04096		0.99360	0.98720	8.301478	6.04	0.00640	4.51 93.33
0.0065	0.04225	10.00	0.99350	0.98700	8.301485	6.05	0.00650	4.52 14.16
0.0066	0.04356		0.99340	0.98680	8.301492	6.06	0.00660	4.52 35.00
0.0067	0.04489		0.99330	0.98660	8.301499	6.07	0.00670	4.52 55.83
0.0068	0.04624		0.99320	0.98640	8.301506	6.08	0.00680	4.52 76.66
0.0069	0.04761		0.99310	0.98620	8.301513	6.09	0.00690	4.52 97.50
0.0070	0.04900	10.00	0.99300	0.98600	8.301520	6.10	0.00700	4.53 18.33
0.0071	0.05041		0.99290	0.98580	8.301527	6.11	0.00710	4.53 39.16
0.0072	0.05184		0.99280	0.98560	8.301534	6.12	0.00720	4.53 60.00
0.0073	0.05329		0.99270	0.98540	8.301541	6.13	0.00730	4.53 80.83
0.0074	0.05476		0.99260	0.98520	8.301548	6.14	0.00740	4.54 01.66
0.0075	0.05625	10.00	0.99250	0.98500	8.301555	6.15	0.00750	4.54 22.50
0.0076	0.05776		0.99240	0.98480	8.301562	6.16	0.00760	4.54 43.33
0.0077	0.05929		0.99230	0.98460	8.301569	6.17	0.00770	4.54 64.16
0.0078	0.06084		0.99220	0.98440	8.301576	6.18	0.00780	4.54 85.00
0.0079	0.06241		0.99210	0.98420	8.301583	6.19	0.00790	4.55 05.83
0.0080	0.06400	10.00	0.99200	0.98400	8.301590	6.20	0.00800	4.55 26.66
0.0081	0.06561		0.99190	0.98380	8.301597	6.21	0.00810	4.55 47.50
0.0082	0.06724		0.99180	0.98360	8.301604	6.22	0.00820	4.55 68.33
0.0083	0.06889		0.99170	0.98340	8.301611	6.23	0.00830	4.55 89.16
0.0084	0.07056		0.99160	0.98320	8.301618	6.24	0.00840	4.56 10.00
0.0085	0.07225	10.00	0.99150	0.98300	8.301625	6.25	0.00850	4.56 30.83
0.0086	0.07396		0.99140	0.98280	8.301632	6.26	0.00860	4.56 51.66
0.0087	0.07569		0.99130	0.98260	8.301639	6.27	0.00870	4.56 72.50
0.0088	0.07744		0.99120	0.98240	8.301646	6.28	0.00880	4.56 93.33
0.0089	0.07921		0.99110	0.98220	8.301653	6.29	0.00890	4.57 14.16
0.0090	0.08100	10.00	0.99100	0.98200	8.301660	6.30	0.00900	4.57 35.00
0.0091	0.08281		0.99090	0.98180	8.301667	6.31	0.00910	4.57 55.83
0.0092	0.08464		0.99080	0.98160	8.301674	6.32	0.00920	4.57 76.66
0.0093	0.08649		0.99070	0.98140	8.301681	6.33	0.00930	4.57 97.50
0.0094	0.08836		0.99060	0.98120	8.301688	6.34	0.00940	4.58 18.33
0.0095	0.09025	10.00	0.99050	0.98100	8.301695	6.35	0.00950	4.58 39.16
0.0096	0.09216		0.99040	0.98080	8.301702	6.36	0.00960	4.58 60.00
0.0097	0.09409		0.99030	0.98060	8.301709	6.37	0.00970	4.58 80.83
0.0098	0.09604		0.99020	0.98040	8.301716	6.38	0.00980	4.59 01.66
0.0099	0.09801		0.99010	0.98020	8.301723	6.39	0.00990	4.59 22.50
0.0100	0.01000	10.00	0.99000	0.98000	8.301730	6.40	0.01000	4.59 43.33

SMITHSONIAN TABLES

Circular Functions.

n	$\sin n$	$= F_1'$	$\cos n$	$= F_2'$	$\log \sin n$	$= F_3'$	$\log \cos n$	$= F_4'$	π
0.0850 .0851 .0852 .0853 .0854	0.081120 .081130 .081140 .081150 .081160	10.0 10.0 10.0 10.0 10.0	0.996139 0.996134 0.996127 0.996120 0.996113	0.8 0.8 0.9 0.9 0.9	8.00830 0.00831 0.00832 0.00833 0.00834	51.0 50.9 50.9 50.8 50.7	0.00833 0.00833 0.00833 0.00833 0.00833	0.4	4 52 12.51 4 52 13.14 4 52 13.76 4 53 14.38 4 53 15.01
0.0855 .0856 .0857 .0858 .0859	0.081170 .081180 .081190 .081200 .081210	10.0 10.0 10.0 10.0 10.0	0.996105 0.996098 0.996093 0.996086 0.996079	0.9 0.9 0.9 0.9 0.9	8.013144 0.01314 0.01315 0.01315 0.01315	50.7 50.6 50.6 50.5 50.4	0.00834 0.00834 0.00834 0.00834 0.00834	0.4	4 53 15.64 4 53 16.27 4 54 16.89 4 54 17.52 4 55 18.15
0.0860 .0861 .0862 .0863 .0864	0.081220 .081230 .081240 .081250 .081260	10.0 10.0 10.0 10.0 10.0	0.996070 0.996063 0.996058 0.996051 0.996044	0.9 0.9 0.9 0.9 0.9	8.01805 0.01807 0.01807 0.01807 0.01807	50.4 50.3 50.3 50.2 50.1	0.00835 0.00835 0.00835 0.00835 0.00835	0.4	4 55 18.77 4 55 19.40 4 56 20.03 4 56 20.65 4 57 21.28
0.0865 .0866 .0867 .0868 .0869	0.081270 .081280 .081290 .081300 .081310	10.0 10.0 10.0 10.0 10.0	0.996035 0.996028 0.996024 0.996019 0.996013	0.9 0.9 0.9 0.9 0.9	8.023047 0.02307 0.02307 0.02307 0.02307	50.1 50.0 50.0 49.9 49.8	0.00837 0.00837 0.00837 0.00837 0.00836	0.4	4 57 21.91 4 57 22.53 4 58 23.16 4 58 23.79 4 58 24.41
0.0870 .0871 .0872 .0873 .0874	0.081320 .081330 .081340 .081350 .081360	10.0 10.0 10.0 10.0 10.0	0.995982 0.995974 0.995968 0.995963 0.995958	0.9 0.9 0.9 0.9 0.9	8.02807 0.02807 0.02807 0.02807 0.02806	49.8 49.7 49.7 49.6 49.6	0.00835 0.00835 0.00835 0.00835 0.00834	0.4	4 59 25.05 4 59 25.66 4 59 26.29 5 00 26.92 5 00 27.55
0.0875 .0876 .0877 .0878 .0879	0.081370 .081380 .081390 .081400 .081410	10.0 10.0 10.0 10.0 10.0	0.995917 0.995912 0.995906 0.995901 0.995894	0.9 0.9 0.9 0.9 0.9	8.033145 0.03315 0.03315 0.03315 0.03314	49.5 49.5 49.4 49.3 49.3	0.00834 0.00834 0.00834 0.00834 0.00833	0.4	5 00 28.17 5 01 28.80 5 01 29.43 5 01 30.05 5 02 30.68
0.0880 .0881 .0882 .0883 .0884	0.081460 .081470 .081480 .081490 .081500	10.0 10.0 10.0 10.0 10.0	0.995833 0.995828 0.995821 0.995816 0.995810	0.9 0.9 0.9 0.9 0.9	8.03832 0.03831 0.03831 0.03831 0.03830	49.2 49.2 49.1 49.1 49.0	0.00832 0.00832 0.00832 0.00832 0.00830	0.4	5 02 31.30 5 02 31.93 5 03 32.55 5 03 33.18 5 03 33.81
0.0885 .0886 .0887 .0888 .0889	0.081510 .081520 .081530 .081540 .081550	10.0 10.0 10.0 10.0 10.0	0.995769 0.995763 0.995757 0.995751 0.995745	0.9 0.9 0.9 0.9 0.9	8.04361 0.04361 0.04361 0.04361 0.04360	48.9 48.8 48.8 48.7 48.7	0.00830 0.00830 0.00830 0.00830 0.00828	0.4	5 04 34.44 5 04 35.06 5 04 35.69 5 05 36.31 5 05 36.94
0.0890 .0891 .0892 .0893 .0894	0.081600 .081610 .081620 .081630 .081640	10.0 10.0 10.0 10.0 10.0	0.995684 0.995678 0.995672 0.995666 0.995660	0.9 0.9 0.9 0.9 0.9	8.04882 0.04883 0.04883 0.04883 0.04882	48.7 48.6 48.6 48.5 48.4	0.00828 0.00828 0.00828 0.00827 0.00826	0.4	5 05 37.57 5 06 38.19 5 06 38.82 5 06 39.45 5 07 40.07
0.0895 .0896 .0897 .0898 .0899	0.081690 .081700 .081710 .081720 .081730	10.0 10.0 10.0 10.0 10.0	0.995599 0.995593 0.995587 0.995581 0.995575	0.9 0.9 0.9 0.9 0.9	8.05424 0.05424 0.05424 0.05424 0.05423	48.4 48.3 48.3 48.2 48.2	0.00826 0.00826 0.00826 0.00825 0.00824	0.4	5 07 40.70 5 08 41.33 5 08 41.95 5 08 42.58 5 09 43.21
0.0900 .0901 .0902 .0903 .0904	0.081820 .081830 .081840 .081850 .081860	10.0 10.0 10.0 10.0 10.0	0.995489 0.995483 0.995477 0.995471 0.995465	0.9 0.9 0.9 0.9 0.9	8.05966 0.05966 0.05966 0.05966 0.05965	48.1 48.1 48.0 48.0 47.9	0.00824 0.00824 0.00824 0.00824 0.00823	0.4	5 09 43.83 5 10 44.46 5 10 45.09 5 10 45.72 5 11 46.35

Circular Functions.

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\cot \theta$	$\sec \theta$	$\csc \theta$	$\log \sin \theta$	$\log \cos \theta$	$\log \tan \theta$	$\log \cot \theta$	$\log \sec \theta$	$\log \csc \theta$
0.0000	0.00000	1.00000	0.00000	∞	1.00000	∞	0.00000	0.00000	0.00000	∞	∞	∞
0.0001	0.00010	0.99999	0.00010	9.99999	1.00001	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0002	0.00020	0.99998	0.00020	9.99996	1.00004	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0003	0.00030	0.99997	0.00030	9.99991	1.00009	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0004	0.00040	0.99996	0.00040	9.99984	1.00016	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0005	0.00050	0.99995	0.00050	9.99975	1.00025	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0006	0.00060	0.99994	0.00060	9.99964	1.00036	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0007	0.00070	0.99993	0.00070	9.99951	1.00049	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0008	0.00080	0.99992	0.00080	9.99936	1.00064	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0009	0.00090	0.99991	0.00090	9.99919	1.00081	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0010	0.00100	0.99990	0.00100	9.99900	1.00100	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0011	0.00110	0.99989	0.00110	9.99879	1.00121	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0012	0.00120	0.99988	0.00120	9.99856	1.00144	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0013	0.00130	0.99987	0.00130	9.99831	1.00169	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0014	0.00140	0.99986	0.00140	9.99804	1.00196	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0015	0.00150	0.99985	0.00150	9.99775	1.00225	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0016	0.00160	0.99984	0.00160	9.99744	1.00256	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0017	0.00170	0.99983	0.00170	9.99711	1.00289	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0018	0.00180	0.99982	0.00180	9.99676	1.00324	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0019	0.00190	0.99981	0.00190	9.99639	1.00361	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0020	0.00200	0.99980	0.00200	9.99600	1.00400	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0021	0.00210	0.99979	0.00210	9.99559	1.00441	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0022	0.00220	0.99978	0.00220	9.99516	1.00484	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0023	0.00230	0.99977	0.00230	9.99471	1.00529	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0024	0.00240	0.99976	0.00240	9.99424	1.00576	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0025	0.00250	0.99975	0.00250	9.99375	1.00625	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0026	0.00260	0.99974	0.00260	9.99324	1.00676	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0027	0.00270	0.99973	0.00270	9.99271	1.00729	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0028	0.00280	0.99972	0.00280	9.99216	1.00784	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0029	0.00290	0.99971	0.00290	9.99159	1.00841	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0030	0.00300	0.99970	0.00300	9.99100	1.00900	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0031	0.00310	0.99969	0.00310	9.99039	1.00961	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0032	0.00320	0.99968	0.00320	9.98976	1.01024	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0033	0.00330	0.99967	0.00330	9.98911	1.01089	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0034	0.00340	0.99966	0.00340	9.98844	1.01156	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0035	0.00350	0.99965	0.00350	9.98775	1.01225	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0036	0.00360	0.99964	0.00360	9.98704	1.01296	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0037	0.00370	0.99963	0.00370	9.98631	1.01369	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0038	0.00380	0.99962	0.00380	9.98556	1.01444	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0039	0.00390	0.99961	0.00390	9.98479	1.01521	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0040	0.00400	0.99960	0.00400	9.98400	1.01600	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0041	0.00410	0.99959	0.00410	9.98319	1.01681	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0042	0.00420	0.99958	0.00420	9.98236	1.01764	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0043	0.00430	0.99957	0.00430	9.98151	1.01849	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0044	0.00440	0.99956	0.00440	9.98064	1.01936	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0045	0.00450	0.99955	0.00450	9.97975	1.02025	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0046	0.00460	0.99954	0.00460	9.97884	1.02116	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0047	0.00470	0.99953	0.00470	9.97791	1.02209	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0048	0.00480	0.99952	0.00480	9.97696	1.02304	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0049	0.00490	0.99951	0.00490	9.97600	1.02401	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0050	0.00500	0.99950	0.00500	9.97503	1.02500	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0051	0.00510	0.99949	0.00510	9.97404	1.02601	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0052	0.00520	0.99948	0.00520	9.97304	1.02704	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0053	0.00530	0.99947	0.00530	9.97203	1.02809	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0054	0.00540	0.99946	0.00540	9.97101	1.02916	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0055	0.00550	0.99945	0.00550	9.97000	1.03025	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0056	0.00560	0.99944	0.00560	9.96897	1.03136	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0057	0.00570	0.99943	0.00570	9.96793	1.03249	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0058	0.00580	0.99942	0.00580	9.96688	1.03364	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0059	0.00590	0.99941	0.00590	9.96582	1.03481	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0060	0.00600	0.99940	0.00600	9.96475	1.03600	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0061	0.00610	0.99939	0.00610	9.96367	1.03721	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0062	0.00620	0.99938	0.00620	9.96258	1.03844	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0063	0.00630	0.99937	0.00630	9.96148	1.03969	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0064	0.00640	0.99936	0.00640	9.96037	1.04096	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0065	0.00650	0.99935	0.00650	9.95925	1.04225	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0066	0.00660	0.99934	0.00660	9.95812	1.04356	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0067	0.00670	0.99933	0.00670	9.95698	1.04489	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0068	0.00680	0.99932	0.00680	9.95583	1.04624	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0069	0.00690	0.99931	0.00690	9.95467	1.04761	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0070	0.00700	0.99930	0.00700	9.95350	1.04900	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0071	0.00710	0.99929	0.00710	9.95232	1.05041	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0072	0.00720	0.99928	0.00720	9.95113	1.05184	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0073	0.00730	0.99927	0.00730	9.94993	1.05329	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0074	0.00740	0.99926	0.00740	9.94872	1.05476	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.0075	0.00750	0.99925	0.00750	9.94750	1.05625	1.00000	0.00000					

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	α	$\sin \alpha$	$\cos \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	α
0.0000	0.00000	1.00000	0.00000	0.00000	0.0000	0.00000	1.00000	0.00000	0.00000	0.0000
0.0001	0.00010	0.99990	0.00004	0.00000	0.0001	0.00010	0.99990	0.00004	0.00000	0.0001
0.0002	0.00020	0.99980	0.00008	0.00000	0.0002	0.00020	0.99980	0.00008	0.00000	0.0002
0.0003	0.00030	0.99970	0.00012	0.00000	0.0003	0.00030	0.99970	0.00012	0.00000	0.0003
0.0004	0.00040	0.99960	0.00016	0.00000	0.0004	0.00040	0.99960	0.00016	0.00000	0.0004
0.0005	0.00050	0.99950	0.00020	0.00000	0.0005	0.00050	0.99950	0.00020	0.00000	0.0005
0.0006	0.00060	0.99940	0.00024	0.00000	0.0006	0.00060	0.99940	0.00024	0.00000	0.0006
0.0007	0.00070	0.99930	0.00028	0.00000	0.0007	0.00070	0.99930	0.00028	0.00000	0.0007
0.0008	0.00080	0.99920	0.00032	0.00000	0.0008	0.00080	0.99920	0.00032	0.00000	0.0008
0.0009	0.00090	0.99910	0.00036	0.00000	0.0009	0.00090	0.99910	0.00036	0.00000	0.0009
0.0010	0.00100	0.99900	0.00040	0.00000	0.0010	0.00100	0.99900	0.00040	0.00000	0.0010
0.0011	0.00110	0.99890	0.00044	0.00000	0.0011	0.00110	0.99890	0.00044	0.00000	0.0011
0.0012	0.00120	0.99880	0.00048	0.00000	0.0012	0.00120	0.99880	0.00048	0.00000	0.0012
0.0013	0.00130	0.99870	0.00052	0.00000	0.0013	0.00130	0.99870	0.00052	0.00000	0.0013
0.0014	0.00140	0.99860	0.00056	0.00000	0.0014	0.00140	0.99860	0.00056	0.00000	0.0014
0.0015	0.00150	0.99850	0.00060	0.00000	0.0015	0.00150	0.99850	0.00060	0.00000	0.0015
0.0016	0.00160	0.99840	0.00064	0.00000	0.0016	0.00160	0.99840	0.00064	0.00000	0.0016
0.0017	0.00170	0.99830	0.00068	0.00000	0.0017	0.00170	0.99830	0.00068	0.00000	0.0017
0.0018	0.00180	0.99820	0.00072	0.00000	0.0018	0.00180	0.99820	0.00072	0.00000	0.0018
0.0019	0.00190	0.99810	0.00076	0.00000	0.0019	0.00190	0.99810	0.00076	0.00000	0.0019
0.0020	0.00200	0.99800	0.00080	0.00000	0.0020	0.00200	0.99800	0.00080	0.00000	0.0020
0.0021	0.00210	0.99790	0.00084	0.00000	0.0021	0.00210	0.99790	0.00084	0.00000	0.0021
0.0022	0.00220	0.99780	0.00088	0.00000	0.0022	0.00220	0.99780	0.00088	0.00000	0.0022
0.0023	0.00230	0.99770	0.00092	0.00000	0.0023	0.00230	0.99770	0.00092	0.00000	0.0023
0.0024	0.00240	0.99760	0.00096	0.00000	0.0024	0.00240	0.99760	0.00096	0.00000	0.0024
0.0025	0.00250	0.99750	0.00100	0.00000	0.0025	0.00250	0.99750	0.00100	0.00000	0.0025
0.0026	0.00260	0.99740	0.00104	0.00000	0.0026	0.00260	0.99740	0.00104	0.00000	0.0026
0.0027	0.00270	0.99730	0.00108	0.00000	0.0027	0.00270	0.99730	0.00108	0.00000	0.0027
0.0028	0.00280	0.99720	0.00112	0.00000	0.0028	0.00280	0.99720	0.00112	0.00000	0.0028
0.0029	0.00290									

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u
0.100	0.09983	0.99500	0.01000	100.0	8.99933	1.14321	0.00000	4.1	5 41 40.48
0.101	0.09984	0.99500	0.01000	100.1	8.99935	1.14321	0.00000	4.1	5 42 16.75
0.102	0.09985	0.99500	0.01000	100.2	8.99936	1.14321	0.00000	4.1	5 42 53.02
0.103	0.09986	0.99500	0.01000	100.3	8.99937	1.14321	0.00000	4.1	5 43 29.29
0.104	0.09987	0.99500	0.01000	100.4	8.99938	1.14321	0.00000	4.1	5 44 05.56
0.105	0.09988	0.99500	0.01000	100.5	8.99939	1.14321	0.00000	4.1	5 44 41.83
0.106	0.09989	0.99500	0.01000	100.6	8.99940	1.14321	0.00000	4.1	5 45 17.70
0.107	0.09990	0.99500	0.01000	100.7	8.99941	1.14321	0.00000	4.1	5 45 53.57
0.108	0.09991	0.99500	0.01000	100.8	8.99942	1.14321	0.00000	4.1	5 46 29.44
0.109	0.09992	0.99500	0.01000	100.9	8.99943	1.14321	0.00000	4.1	5 47 05.31
0.110	0.10000	0.99500	0.01000	110.0	9.00000	1.14321	0.00000	4.1	5 47 41.18
0.111	0.10001	0.99500	0.01000	111.1	9.00001	1.14321	0.00000	4.1	5 48 17.05
0.112	0.10002	0.99500	0.01000	112.2	9.00002	1.14321	0.00000	4.1	5 48 52.92
0.113	0.10003	0.99500	0.01000	113.3	9.00003	1.14321	0.00000	4.1	5 49 28.79
0.114	0.10004	0.99500	0.01000	114.4	9.00004	1.14321	0.00000	4.1	5 50 04.66
0.115	0.10005	0.99500	0.01000	115.5	9.00005	1.14321	0.00000	4.1	5 50 40.53
0.116	0.10006	0.99500	0.01000	116.6	9.00006	1.14321	0.00000	4.1	5 51 16.40
0.117	0.10007	0.99500	0.01000	117.7	9.00007	1.14321	0.00000	4.1	5 51 52.27
0.118	0.10008	0.99500	0.01000	118.8	9.00008	1.14321	0.00000	4.1	5 52 28.14
0.119	0.10009	0.99500	0.01000	119.9	9.00009	1.14321	0.00000	4.1	5 53 04.01
0.120	0.10010	0.99500	0.01000	120.0	9.00010	1.14321	0.00000	4.1	5 53 39.88
0.121	0.10011	0.99500	0.01000	121.1	9.00011	1.14321	0.00000	4.1	5 54 15.75
0.122	0.10012	0.99500	0.01000	122.2	9.00012	1.14321	0.00000	4.1	5 54 51.62
0.123	0.10013	0.99500	0.01000	123.3	9.00013	1.14321	0.00000	4.1	5 55 27.49
0.124	0.10014	0.99500	0.01000	124.4	9.00014	1.14321	0.00000	4.1	5 56 03.36
0.125	0.10015	0.99500	0.01000	125.5	9.00015	1.14321	0.00000	4.1	5 56 39.23
0.126	0.10016	0.99500	0.01000	126.6	9.00016	1.14321	0.00000	4.1	5 57 15.10
0.127	0.10017	0.99500	0.01000	127.7	9.00017	1.14321	0.00000	4.1	5 57 50.97
0.128	0.10018	0.99500	0.01000	128.8	9.00018	1.14321	0.00000	4.1	5 58 26.84
0.129	0.10019	0.99500	0.01000	129.9	9.00019	1.14321	0.00000	4.1	5 59 02.71
0.130	0.10020	0.99500	0.01000	130.0	9.00020	1.14321	0.00000	4.1	5 59 38.58
0.131	0.10021	0.99500	0.01000	131.1	9.00021	1.14321	0.00000	4.1	6 00 14.45
0.132	0.10022	0.99500	0.01000	132.2	9.00022	1.14321	0.00000	4.1	6 00 50.32
0.133	0.10023	0.99500	0.01000	133.3	9.00023	1.14321	0.00000	4.1	6 01 26.19
0.134	0.10024	0.99500	0.01000	134.4	9.00024	1.14321	0.00000	4.1	6 02 02.06
0.135	0.10025	0.99500	0.01000	135.5	9.00025	1.14321	0.00000	4.1	6 02 37.93
0.136	0.10026	0.99500	0.01000	136.6	9.00026	1.14321	0.00000	4.1	6 03 13.80
0.137	0.10027	0.99500	0.01000	137.7	9.00027	1.14321	0.00000	4.1	6 03 49.67
0.138	0.10028	0.99500	0.01000	138.8	9.00028	1.14321	0.00000	4.1	6 04 25.54
0.139	0.10029	0.99500	0.01000	139.9	9.00029	1.14321	0.00000	4.1	6 05 01.41
0.140	0.10030	0.99500	0.01000	140.0	9.00030	1.14321	0.00000	4.1	6 05 37.28
0.141	0.10031	0.99500	0.01000	141.1	9.00031	1.14321	0.00000	4.1	6 06 13.15
0.142	0.10032	0.99500	0.01000	142.2	9.00032	1.14321	0.00000	4.1	6 06 49.02
0.143	0.10033	0.99500	0.01000	143.3	9.00033	1.14321	0.00000	4.1	6 07 24.89
0.144	0.10034	0.99500	0.01000	144.4	9.00034	1.14321	0.00000	4.1	6 08 00.76
0.145	0.10035	0.99500	0.01000	145.5	9.00035	1.14321	0.00000	4.1	6 08 36.63
0.146	0.10036	0.99500	0.01000	146.6	9.00036	1.14321	0.00000	4.1	6 09 12.50
0.147	0.10037	0.99500	0.01000	147.7	9.00037	1.14321	0.00000	4.1	6 09 48.37
0.148	0.10038	0.99500	0.01000	148.8	9.00038	1.14321	0.00000	4.1	6 10 24.24
0.149	0.10039	0.99500	0.01000	149.9	9.00039	1.14321	0.00000	4.1	6 11 00.11
0.150	0.10040	0.99500	0.01000	150.0	9.00040	1.14321	0.00000	4.1	6 11 35.98
0.151	0.10041	0.99500	0.01000	151.1	9.00041	1.14321	0.00000	4.1	6 12 11.85
0.152	0.10042	0.99500	0.01000	152.2	9.00042	1.14321	0.00000	4.1	6 12 47.72
0.153	0.10043	0.99500	0.01000	153.3	9.00043	1.14321	0.00000	4.1	6 13 23.59
0.154	0.10044	0.99500	0.01000	154.4	9.00044	1.14321	0.00000	4.1	6 13 59.46
0.155	0.10045	0.99500	0.01000	155.5	9.00045	1.14321	0.00000	4.1	6 14 35.33
0.156	0.10046	0.99500	0.01000	156.6	9.00046	1.14321	0.00000	4.1	6 15 11.20
0.157	0.10047	0.99500	0.01000	157.7	9.00047	1.14321	0.00000	4.1	6 15 47.07
0.158	0.10048	0.99500	0.01000	158.8	9.00048	1.14321	0.00000	4.1	6 16 22.94
0.159	0.10049	0.99500	0.01000	159.9	9.00049	1.14321	0.00000	4.1	6 16 58.81
0.160	0.10050	0.99500	0.01000	160.0	9.00050	1.14321	0.00000	4.1	6 17 34.68
0.161	0.10051	0.99500	0.01000	161.1	9.00051	1.14321	0.00000	4.1	6 18 10.55
0.162	0.10052	0.99500	0.01000	162.2	9.00052	1.14321	0.00000	4.1	6 18 46.42
0.163	0.10053	0.99500	0.01000	163.3	9.00053	1.14321	0.00000	4.1	6 19 22.29
0.164	0.10054	0.99500	0.01000	164.4	9.00054	1.14321	0.00000	4.1	6 19 58.16
0.165	0.10055	0.99500	0.01000	165.5	9.00055	1.14321	0.00000	4.1	6 20 34.03
0.166	0.10056	0.99500	0.01000	166.6	9.00056	1.14321	0.00000	4.1	6 21 09.90
0.167	0.10057	0.99500	0.01000	167.7	9.00057	1.14321	0.00000	4.1	6 21 45.77
0.168	0.10058	0.99500	0.01000	168.8	9.00058	1.14321	0.00000	4.1	6 22 21.64
0.169	0.10059	0.99500	0.01000	169.9	9.00059	1.14321	0.00000	4.1	6 22 57.51
0.170	0.10060	0.99500	0.01000	170.0	9.00060	1.14321	0.00000	4.1	6 23 33.38
0.171	0.10061	0.99500	0.01000	171.1	9.00061	1.14321	0.00000	4.1	6 24 09.25
0.172	0.10062	0.99500	0.01000	172.2	9.00062	1.14321	0.00000	4.1	6 24 45.12
0.173	0.10063	0.99500	0.01000	173.3	9.00063	1.14321	0.00000	4.1	6 25 20.99
0.174	0.10064	0.99500	0.01000	174.4	9.00064	1.14321	0.00000	4.1	6 25 56.86
0.175	0.10065	0.99500	0.01000	175.5	9.00065	1.14321	0.00000	4.1	6 26 32.73
0.176	0.10066	0.99500	0.01000	176.6	9.00066	1.14321	0.00000	4.1	6 27 08.60
0.177	0.10067	0.99500	0.01000	177.7	9.00067	1.14321	0.00000	4.1	6 27 44.47
0.178	0.10068	0.99500	0.01000	178.8	9.00068	1.14321	0.00000	4.1	6 28 20.34
0.179	0.10069	0.99500	0.01000	179.9	9.00069	1.14321	0.00000	4.1	6 28 56.21
0.180	0.10070	0.99500	0.01000	180.0	9.00070	1.14321	0.00000	4.1	6 29 32.08
0.181	0.10071	0.99500	0.01000	181.1	9.00071	1.14321	0.00000	4.1	6 30 07.95
0.182	0.10072	0.99500	0.01000	182.2	9.00072	1.14321	0.00000	4.1	6 30 43.82
0.183	0.10073	0.99500	0.01000	183.3	9.00073	1.14321	0.00000	4.1	6 31 19.69
0.184	0.10074	0.99500	0.01000	184.4	9.00074	1.14321	0.00000	4.1	6 31 55.56
0.185	0.10075	0.99500	0.01000	185.5	9.00075	1.14321	0.00000	4.1	6 32 31.43
0.186	0.10076	0.99500	0.01000	186.6	9.00076	1.14321	0.00000	4.1	6 33 07.30
0.187	0.10077	0.99500	0.01000	187.7	9.00077	1.14321	0.00000	4.1	6 33 43.17
0.188	0.10078	0.99500	0.01000	188.8	9.00078	1.14321	0.00000	4.1	6 34 19.04
0.189	0.10079	0.99500	0.01000	189.9	9.00079	1.14321	0.00000	4.1	6 34 54.91
0.190	0.10080	0.99500	0.01000	190.0	9.00080	1.14321	0.00000	4.1	6 35 30.78
0.191	0.10081	0.99500	0.01000	191.1	9.00081	1.14321	0.00000	4.1	6 36 06.65
0.192	0.10082	0.99500	0.01000	192.2	9.00082	1.14321	0.00000	4.1	6 36 42.52
0.193	0.10083	0.99500	0.01000	193.3	9.00083	1.14321	0.00000	4.1	6 37 18.39
0.194	0.10084	0.99500	0.01000	194.4	9.00084	1.14321	0.00000	4.1	6 37 54.26
0.195	0.10085	0.99500	0.01000	195.5	9.00085	1.14321	0.00000	4.1	6 38 30.13
0.196	0.10086	0.99500	0.01000	196.6	9.00086	1.14321	0.00000	4.1	6 39 06.00
0.197	0.10087	0.99500	0.01000	197.7	9.00087	1.14321	0.00000	4.1	6 39 41.87
0.198	0.10088	0.99500	0.01000	198.8	9.00088	1.14321	0.00000	4.1	6 40 17.74
0.199	0.10089	0.99500	0.01000	199.9	9.00089	1.14321	0.00000	4.1	6 40 53.61
0.200	0.10090	0.99500	0.01000	200.0	9.00090	1.14321	0.00000	4.1	6 41 29.48
0.201	0.10091	0.99500	0.01000	201.1	9.00091	1.14321			

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$	$\log \csc u$
0.150	0.14944	0.98877	6.6077	15.0	1.017436	387.4	9.00510	6.0	8.15 39.72			
.151	0.15033	0.98862	6.6082	15.1	1.017531	387.4	9.00503	6.0	8.30 05.00			
.152	0.15122	0.98847	6.6087	15.2	1.017626	387.4	9.00496	6.0	8.44 34.25			
.153	0.15210	0.98832	6.6092	15.3	1.017721	387.4	9.00489	6.0	8.58 58.52			
.154	0.15299	0.98817	6.6097	15.4	1.017816	387.4	9.00482	6.0	8.73 24.78			
0.155	0.15388	0.98801	6.6102	15.5	1.017911	387.4	9.00475	6.0	8.87 51.04			
.156	0.15477	0.98786	6.6107	15.6	1.018006	387.4	9.00468	6.0	9.02 17.31			
.157	0.15565	0.98770	6.6112	15.7	1.018101	387.4	9.00461	6.0	9.16 43.57			
.158	0.15654	0.98755	6.6117	15.8	1.018196	387.4	9.00454	6.0	9.31 09.84			
.159	0.15743	0.98739	6.6122	15.9	1.018291	387.4	9.00447	6.0	9.45 36.10			
0.160	0.15832	0.98724	6.6127	16.0	1.018386	387.4	9.00440	6.0	9.60 02.37			
.161	0.15921	0.98707	6.6132	16.1	1.018481	387.4	9.00433	6.0	9.74 28.63			
.162	0.16010	0.98692	6.6137	16.2	1.018576	387.4	9.00426	6.0	9.88 54.90			
.163	0.16099	0.98676	6.6142	16.3	1.018671	387.4	9.00419	6.0	10.03 21.16			
.164	0.16188	0.98661	6.6147	16.4	1.018766	387.4	9.00412	6.0	10.17 47.43			
0.165	0.16277	0.98645	6.6152	16.5	1.018861	387.4	9.00405	6.0	10.32 13.69			
.166	0.16366	0.98630	6.6157	16.6	1.018956	387.4	9.00398	6.0	10.46 39.96			
.167	0.16455	0.98614	6.6162	16.7	1.019051	387.4	9.00391	6.0	10.61 06.22			
.168	0.16544	0.98599	6.6167	16.8	1.019146	387.4	9.00384	6.0	10.75 32.49			
.169	0.16633	0.98583	6.6172	16.9	1.019241	387.4	9.00377	6.0	10.90 08.75			
0.170	0.16722	0.98568	6.6177	17.0	1.019336	387.4	9.00370	6.0	11.04 35.02			
.171	0.16811	0.98552	6.6182	17.1	1.019431	387.4	9.00363	6.0	11.19 01.28			
.172	0.16900	0.98537	6.6187	17.2	1.019526	387.4	9.00356	6.0	11.33 27.55			
.173	0.16989	0.98521	6.6192	17.3	1.019621	387.4	9.00349	6.0	11.47 53.81			
.174	0.17078	0.98506	6.6197	17.4	1.019716	387.4	9.00342	6.0	11.62 20.08			
0.175	0.17167	0.98490	6.6202	17.5	1.019811	387.4	9.00335	6.0	11.76 46.34			
.176	0.17256	0.98475	6.6207	17.6	1.019906	387.4	9.00328	6.0	11.91 12.61			
.177	0.17345	0.98459	6.6212	17.7	1.020001	387.4	9.00321	6.0	12.05 38.87			
.178	0.17434	0.98444	6.6217	17.8	1.020096	387.4	9.00314	6.0	12.20 05.14			
.179	0.17523	0.98428	6.6222	17.9	1.020191	387.4	9.00307	6.0	12.34 31.40			
0.180	0.17612	0.98413	6.6227	18.0	1.020286	387.4	9.00300	6.0	12.48 57.67			
.181	0.17701	0.98397	6.6232	18.1	1.020381	387.4	9.00293	6.0	12.63 23.93			
.182	0.17790	0.98382	6.6237	18.2	1.020476	387.4	9.00286	6.0	12.77 50.20			
.183	0.17879	0.98366	6.6242	18.3	1.020571	387.4	9.00279	6.0	12.92 16.46			
.184	0.17968	0.98351	6.6247	18.4	1.020666	387.4	9.00272	6.0	13.06 42.73			
0.185	0.18057	0.98335	6.6252	18.5	1.020761	387.4	9.00265	6.0	13.21 08.99			
.186	0.18146	0.98320	6.6257	18.6	1.020856	387.4	9.00258	6.0	13.35 35.26			
.187	0.18235	0.98304	6.6262	18.7	1.020951	387.4	9.00251	6.0	13.50 01.52			
.188	0.18324	0.98289	6.6267	18.8	1.021046	387.4	9.00244	6.0	13.64 27.78			
.189	0.18413	0.98273	6.6272	18.9	1.021141	387.4	9.00237	6.0	13.79 04.05			
0.190	0.18502	0.98258	6.6277	19.0	1.021236	387.4	9.00230	6.0	13.93 30.31			
.191	0.18591	0.98242	6.6282	19.1	1.021331	387.4	9.00223	6.0	14.07 56.58			
.192	0.18680	0.98227	6.6287	19.2	1.021426	387.4	9.00216	6.0	14.22 22.84			
.193	0.18769	0.98211	6.6292	19.3	1.021521	387.4	9.00209	6.0	14.36 49.11			
.194	0.18858	0.98196	6.6297	19.4	1.021616	387.4	9.00202	6.0	14.51 25.37			
0.195	0.18947	0.98180	6.6302	19.5	1.021711	387.4	9.00195	6.0	14.65 51.64			
.196	0.19036	0.98165	6.6307	19.6	1.021806	387.4	9.00188	6.0	14.80 17.90			
.197	0.19125	0.98149	6.6312	19.7	1.021901	387.4	9.00181	6.0	14.94 44.17			
.198	0.19214	0.98134	6.6317	19.8	1.022006	387.4	9.00174	6.0	15.09 20.43			
.199	0.19303	0.98118	6.6322	19.9	1.022101	387.4	9.00167	6.0	15.23 46.70			
0.200	0.19392	0.98103	6.6327	20.0	1.022196	387.4	9.00160	6.0	15.38 22.96			
u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$	$\log \csc u$

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
0.200	0.19847	58.0	0.98007	10.0	9.29813	214.2	9.99126	8.8	11 27 12.66
.201	.19975	58.0	.97987	20.0	.29827	215.1	.99117	8.8	11 30 51.41
.202	.20103	58.0	.97967	20.1	.29839	215.1	.99108	8.9	11 34 25.09
.203	.20231	57.9	.97947	20.2	.29851	215.0	.99099	8.9	11 37 54.79
.204	.20359	57.9	.97927	20.3	.29864	205.0	.99090	9.0	11 41 18.04
0.205	0.20487	57.9	0.97907	20.4	9.29877	205.0	9.99081	9.0	11 44 44.50
.205	.20455	57.9	.97886	20.5	.29890	207.8	.99072	9.1	11 48 10.55
.207	.20552	57.9	.97858	20.6	.29903	208.8	.99063	9.1	11 51 37.84
.208	.20680	57.8	.97838	20.7	.29915	209.8	.99054	9.2	11 55 04.68
.209	.20808	57.8	.97818	20.7	.29928	210.8	.99044	9.2	11 58 29.34
0.210	0.20936	57.8	0.97798	20.8	9.29941	210.8	9.99035	9.3	12 01 55.61
.211	.21064	57.8	.97778	20.9	.29954	212.6	.99026	9.3	12 05 21.89
.212	.21192	57.8	.97758	21.0	.29967	213.6	.99017	9.3	12 08 48.14
.213	.21320	57.7	.97738	21.1	.29980	214.6	.99008	9.4	12 12 14.40
.214	.21448	57.7	.97718	21.2	.29993	215.6	.99008	9.4	12 15 40.67
0.215	0.21576	57.7	0.97698	21.3	9.29999	215.6	9.99008	9.5	12 19 06.93
.216	.21704	57.7	.97678	21.4	.29999	217.4	.99009	9.5	12 22 33.20
.217	.21832	57.7	.97658	21.5	.29999	218.4	.99009	9.5	12 25 59.46
.218	.21960	57.6	.97638	21.6	.29999	219.4	.99009	9.6	12 29 25.73
.219	.22088	57.6	.97618	21.7	.29999	220.4	.99009	9.7	12 32 51.99
0.220	0.22216	57.6	0.97598	21.8	9.29999	220.4	9.99009	9.7	12 36 18.26
.221	.22344	57.6	.97578	21.9	.29999	222.2	.99010	9.7	12 39 44.52
.222	.22472	57.5	.97558	22.0	.29999	223.2	.99010	9.8	12 43 10.79
.223	.22600	57.5	.97538	22.1	.29999	224.2	.99010	9.8	12 46 37.05
.224	.22728	57.5	.97518	22.2	.29999	225.2	.99010	9.9	12 50 03.32
0.225	0.22856	57.5	0.97498	22.3	9.29999	225.2	9.99010	9.9	12 53 29.58
.225	.22984	57.5	.97478	22.4	.29999	227.0	.99011	10.0	12 56 55.85
.227	.23112	57.4	.97458	22.5	.29999	228.0	.99011	10.0	13 00 22.11
.228	.23240	57.4	.97438	22.6	.29999	229.0	.99011	10.1	13 03 48.38
.229	.23368	57.4	.97418	22.7	.29999	230.0	.99011	10.1	13 07 14.64
0.230	0.23496	57.4	0.97398	22.8	9.29999	230.0	9.99011	10.2	13 10 40.91
.231	.23624	57.3	.97378	22.9	.29999	231.8	.99012	10.2	13 14 07.17
.232	.23752	57.3	.97358	23.0	.29999	232.8	.99012	10.3	13 17 33.44
.233	.23880	57.3	.97338	23.1	.29999	233.8	.99012	10.3	13 20 59.70
.234	.24008	57.3	.97318	23.2	.29999	234.8	.99012	10.4	13 24 25.96
0.235	0.24136	57.3	0.97298	23.3	9.29999	234.8	9.99012	10.4	13 27 52.23
.236	.24264	57.2	.97278	23.4	.29999	236.6	.99013	10.4	13 31 18.50
.237	.24392	57.2	.97258	23.5	.29999	237.6	.99013	10.5	13 34 44.76
.238	.24520	57.2	.97238	23.6	.29999	238.6	.99013	10.5	13 38 11.02
.239	.24648	57.2	.97218	23.7	.29999	239.6	.99013	10.6	13 41 37.29
0.240	0.24776	57.1	0.97198	23.8	9.29999	239.6	9.99013	10.6	13 45 03.55
.241	.24904	57.1	.97178	23.9	.29999	241.4	.99014	10.7	13 48 29.82
.242	.25032	57.1	.97158	24.0	.29999	242.4	.99014	10.7	13 51 56.08
.243	.25160	57.1	.97138	24.1	.29999	243.4	.99014	10.8	13 55 22.35
.244	.25288	57.0	.97118	24.2	.29999	244.4	.99014	10.8	13 58 48.61
0.245	0.25416	57.0	0.97098	24.3	9.29999	244.4	9.99014	10.9	14 02 14.88
.246	.25544	57.0	.97078	24.4	.29999	246.2	.99015	10.9	14 05 41.14
.247	.25672	57.0	.97058	24.5	.29999	247.2	.99015	11.0	14 09 07.41
.248	.25800	57.0	.97038	24.6	.29999	248.2	.99015	11.0	14 12 33.67
.249	.25928	57.0	.97018	24.7	.29999	249.2	.99015	11.0	14 15 59.94
0.250	0.26056	56.9	0.96998	24.7	9.29999	249.2	9.99015	11.1	14 19 26.20
u	$-1 \sinh u$	$= F_1'$	$\cosh u$	$= F_2'$	$\log \frac{\sinh u}{u}$	$= F_3'$	$\log \cosh u$	$= F_4'$	u

SMITHSONIAN TABLES

Circular Functions.

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\cot \theta$	$\sec \theta$	$\csc \theta$	$\log \sin \theta$	$\log \cos \theta$	$\log \tan \theta$	θ
0.250	0.24740	0.96917	0.25534	3.91608	1.02115	1.02115	9.39348	9.98528	0.09180	14.19 26.20
.251	0.24847	0.96881	0.25641	3.91500	1.02141	1.02141	9.39455	9.98517	0.09297	14.22 26.27
.252	0.24954	0.96844	0.25748	3.91392	1.02167	1.02167	9.39582	9.98506	0.09414	14.25 26.34
.253	0.25061	0.96807	0.25855	3.91284	1.02193	1.02193	9.39709	9.98495	0.09531	14.28 26.41
.254	0.25168	0.96770	0.25962	3.91176	1.02219	1.02219	9.39836	9.98484	0.09648	14.31 26.48
0.255	0.25275	0.96733	0.26069	3.91068	1.02245	1.02245	9.39963	9.98473	0.09765	14.34 26.55
.256	0.25382	0.96696	0.26176	3.90960	1.02271	1.02271	9.40090	9.98462	0.09882	14.37 26.62
.257	0.25489	0.96659	0.26283	3.90852	1.02297	1.02297	9.40217	9.98451	0.09999	14.40 26.69
.258	0.25596	0.96622	0.26390	3.90744	1.02323	1.02323	9.40344	9.98440	0.10116	14.43 26.76
.259	0.25703	0.96585	0.26497	3.90636	1.02349	1.02349	9.40471	9.98429	0.10233	14.46 26.83
0.260	0.25810	0.96548	0.26604	3.90528	1.02375	1.02375	9.40598	9.98418	0.10350	14.49 26.90
.261	0.25917	0.96511	0.26711	3.90420	1.02401	1.02401	9.40725	9.98407	0.10467	14.52 26.97
.262	0.26024	0.96474	0.26818	3.90312	1.02427	1.02427	9.40852	9.98396	0.10584	14.55 27.04
.263	0.26131	0.96437	0.26925	3.90204	1.02453	1.02453	9.40979	9.98385	0.10701	14.58 27.11
.264	0.26238	0.96400	0.27032	3.90096	1.02479	1.02479	9.41106	9.98374	0.10818	14.61 27.18
0.265	0.26345	0.96363	0.27139	3.90000	1.02505	1.02505	9.41233	9.98363	0.10935	14.64 27.25
.266	0.26452	0.96326	0.27246	3.89892	1.02531	1.02531	9.41360	9.98352	0.11052	14.67 27.32
.267	0.26559	0.96289	0.27353	3.89784	1.02557	1.02557	9.41487	9.98341	0.11169	14.70 27.39
.268	0.26666	0.96252	0.27460	3.89676	1.02583	1.02583	9.41614	9.98330	0.11286	14.73 27.46
.269	0.26773	0.96215	0.27567	3.89568	1.02609	1.02609	9.41741	9.98319	0.11403	14.76 27.53
0.270	0.26880	0.96178	0.27674	3.89460	1.02635	1.02635	9.41868	9.98308	0.11520	14.79 27.60
.271	0.26987	0.96141	0.27781	3.89352	1.02661	1.02661	9.41995	9.98297	0.11637	14.82 27.67
.272	0.27094	0.96104	0.27888	3.89244	1.02687	1.02687	9.42122	9.98286	0.11754	14.85 27.74
.273	0.27201	0.96067	0.27995	3.89136	1.02713	1.02713	9.42249	9.98275	0.11871	14.88 27.81
.274	0.27308	0.96030	0.28102	3.89028	1.02739	1.02739	9.42376	9.98264	0.11988	14.91 27.88
0.275	0.27415	0.95993	0.28209	3.88920	1.02765	1.02765	9.42503	9.98253	0.12105	14.94 27.95
.276	0.27522	0.95956	0.28316	3.88812	1.02791	1.02791	9.42630	9.98242	0.12222	14.97 28.02
.277	0.27629	0.95919	0.28423	3.88704	1.02817	1.02817	9.42757	9.98231	0.12339	15.00 28.09
.278	0.27736	0.95882	0.28530	3.88596	1.02843	1.02843	9.42884	9.98220	0.12456	15.03 28.16
.279	0.27843	0.95845	0.28637	3.88488	1.02869	1.02869	9.43011	9.98209	0.12573	15.06 28.23
0.280	0.27950	0.95808	0.28744	3.88380	1.02895	1.02895	9.43138	9.98198	0.12690	15.09 28.30
.281	0.28057	0.95771	0.28851	3.88272	1.02921	1.02921	9.43265	9.98187	0.12807	15.12 28.37
.282	0.28164	0.95734	0.28958	3.88164	1.02947	1.02947	9.43392	9.98176	0.12924	15.15 28.44
.283	0.28271	0.95697	0.29065	3.88056	1.02973	1.02973	9.43519	9.98165	0.13041	15.18 28.51
.284	0.28378	0.95660	0.29172	3.87948	1.02999	1.02999	9.43646	9.98154	0.13158	15.21 28.58
0.285	0.28485	0.95623	0.29279	3.87840	1.03025	1.03025	9.43773	9.98143	0.13275	15.24 28.65
.286	0.28592	0.95586	0.29386	3.87732	1.03051	1.03051	9.43900	9.98132	0.13392	15.27 28.72
.287	0.28699	0.95549	0.29493	3.87624	1.03077	1.03077	9.44027	9.98121	0.13509	15.30 28.79
.288	0.28806	0.95512	0.29600	3.87516	1.03103	1.03103	9.44154	9.98110	0.13626	15.33 28.86
.289	0.28913	0.95475	0.29707	3.87408	1.03129	1.03129	9.44281	9.98099	0.13743	15.36 28.93
.290	0.29020	0.95438	0.29814	3.87300	1.03155	1.03155	9.44408	9.98088	0.13860	15.39 29.00
0.291	0.29127	0.95401	0.29921	3.87192	1.03181	1.03181	9.44535	9.98077	0.13977	15.42 29.07
.292	0.29234	0.95364	0.30028	3.87084	1.03207	1.03207	9.44662	9.98066	0.14094	15.45 29.14
.293	0.29341	0.95327	0.30135	3.86976	1.03233	1.03233	9.44789	9.98055	0.14211	15.48 29.21
.294	0.29448	0.95290	0.30242	3.86868	1.03259	1.03259	9.44916	9.98044	0.14328	15.51 29.28
.295	0.29555	0.95253	0.30349	3.86760	1.03285	1.03285	9.45043	9.98033	0.14445	15.54 29.35
0.296	0.29662	0.95216	0.30456	3.86652	1.03311	1.03311	9.45170	9.98022	0.14562	15.57 29.42
.297	0.29769	0.95179	0.30563	3.86544	1.03337	1.03337	9.45297	9.98011	0.14679	15.60 29.49
.298	0.29876	0.95142	0.30670	3.86436	1.03363	1.03363	9.45424	9.98000	0.14796	15.63 29.56
.299	0.29983	0.95105	0.30777	3.86328	1.03389	1.03389	9.45551	9.97989	0.14913	15.66 29.63
0.300	0.30090	0.95068	0.30884	3.86220	1.03415	1.03415	9.45678	9.97978	0.15030	15.69 29.70
.301	0.30197	0.95031	0.30991	3.86112	1.03441	1.03441	9.45805	9.97967	0.15147	15.72 29.77
.302	0.30304	0.94994	0.31098	3.86004	1.03467	1.03467	9.45932	9.97956	0.15264	15.75 29.84
.303	0.30411	0.94957	0.31205	3.85896	1.03493	1.03493	9.46059	9.97945	0.15381	15.78 29.91
0.304	0.30518	0.94920	0.31312	3.85788	1.03519	1.03519	9.46186	9.97934	0.15498	15.81 29.98
.305	0.30625	0.94883	0.31419	3.85680	1.03545	1.03545	9.46313	9.97923	0.15615	15.84 30.05
.306	0.30732	0.94846	0.31526	3.85572	1.03571	1.03571	9.46440	9.97912	0.15732	15.87 30.12
.307	0.30839	0.94809	0.31633	3.85464	1.03597	1.03597	9.46567	9.97901	0.15849	15.90 30.19
.308	0.30946	0.94772	0.31740	3.85356	1.03623	1.03623	9.46694	9.97890	0.15966	15.93 30.26
.309	0.31053	0.94735	0.31847	3.85248	1.03649	1.03649	9.46821	9.97879	0.16083	15.96 30.33
0.310	0.31160	0.94698	0.31954	3.85140	1.03675	1.03675	9.46948	9.97868	0.16200	15.99 30.40
.311	0.31267	0.94661	0.32061	3.85032	1.03701	1.03701	9.47075	9.97857	0.16317	16.02 30.47
.312	0.31374	0.94624	0.32168	3.84924	1.03727	1.03727	9.47202	9.97846	0.16434	16.05 30.54
.313	0.31481	0.94587	0.32275	3.84816	1.03753	1.03753	9.47329	9.97835	0.16551	16.08 30.61
.314	0.31588	0.94550	0.32382	3.84708	1.03779	1.03779	9.47456	9.97824	0.16668	16.11 30.68
.315	0.31695	0.94513	0.32489	3.84600	1.03805	1.03805	9.47583	9.97813	0.16785	16.14 30.75
0.316	0.31802	0.94476	0.32596	3.84492	1.03831	1.03831	9.47710	9.97802	0.16902	16.17 30.82
.317	0.31909	0.94439	0.32703	3.84384	1.03857	1.03857	9.47837	9.97791	0.17019	16.20 30.89
.318	0.32016	0.94402	0.32810	3.84276	1.03883	1.03883	9.47964	9.97780	0.17136	16.23 30.96
.319	0.32123	0.94365	0.32917	3.84168	1.03909	1.03909	9.48091	9.97769	0.17253	16.26 31.03
.320	0.32230	0.94328	0.33024	3.84060	1.03935	1.03935	9.48218	9.97758	0.17370	16.29 31.10
0.321	0.32337	0.94291	0.33131	3.83952	1.03961	1.03961	9.48345	9.97747	0.17487	16.32 31.17
.322	0.32444	0.94254	0.33238	3.83844	1.03987	1.03987	9.48472	9.97736	0.17604	16.35 31.24
.323	0.32551	0.94217	0.33345	3.83736	1.04013	1.04013	9.48599	9.97725	0.17721	16.38 31.31
.324	0.32658	0.94180	0.33452	3.83628	1.04039	1.04039	9.48726	9.97714	0.17838	16.41 31.38
.325	0.32765	0.94143	0.33559	3.83520	1.04065	1.04065	9.48853	9.97703	0.17955	16.44 31.45
.326	0.32872	0.94106	0.33666	3.83412	1.04091	1.04091	9.48980	9.97692	0.18072	16.47 31.52
.327	0.32979	0.94069	0.33773	3.83304	1.04117	1.04117	9.49107	9.97681	0.18189	16.50 31.59
.328	0.33086	0.94032	0.33880	3.83196	1.04143	1.04143	9.49234	9.97670	0.18306	16.53 31.66
.329	0.33193	0.93995	0.33987	3.83088	1.04169	1.04169	9.49361	9.97659	0.18423	16.56 31.73
.330	0.33300	0.93958	0.34094	3.82980	1.04195	1.04195	9.49488	9.97648	0.18540	16.59 31.80
0.331	0.33407	0.93921	0.34201	3.82872	1.04221	1.04221	9.49615	9.97637	0.18657	16.62 31.87
.332	0.33514	0.93884	0.34308	3.82764	1.04247	1.04247	9.49742	9.97626	0.18774	16.65 31.94
.333	0.33621	0.93847	0.34415	3.82656	1.04273	1.04273	9.49869	9.97615	0.18891	16.68 32.01
.334	0.33728	0.93810	0.34522	3.82548	1.04299	1.04299	9.49996	9.97604	0.19008	16.71 32.08
.335	0.33835	0.93773	0.34629	3.82440	1.04325	1.04325	9.50123	9.97593	0.19125	16.74 32.15
.336	0.33942	0.93736	0.34736	3.82332	1.04351	1.04351	9.50250	9.97582	0.19242	16.77 32.22
.337	0.34049	0.93699	0.34843	3.82224	1.04377	1.04377	9.50377	9.97571	0.19359	16.80 32.29
.338	0.34156	0.93662	0.34950	3.82116	1.04403	1.04403	9.50504			

Circular Functions.

x	$\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	x
0.300	0.29552	95.5	0.95534	39.5	9.47059	1.951	0.00000	1.54	17 11 46.41
.301	.29618	95.5	.95591	39.5	.47163	1.952	.00002	1.55	17 11 48.71
.302	.29683	95.5	.95647	39.5	.47268	1.953	.00004	1.55	17 11 51.02
.303	.29748	95.4	.95703	39.8	.47373	1.954	.00007	1.55	17 11 53.34
.304	.29813	95.4	.95759	39.9	.47478	1.954	.00010	1.55	17 11 55.66
0.305	0.29879	95.4	0.95815	39.9	0.47583	1.955	0.00013	1.57	17 11 57.97
.306	.29945	95.4	.95871	39.4	.47687	1.955	.00015	1.57	17 11 59.31
.307	.30010	95.3	.95927	39.7	.47792	1.956	.00018	1.58	17 12 01.62
.308	.30075	95.3	.95983	39.3	.47896	1.955	.00020	1.58	17 12 03.94
.309	.30141	95.3	.96039	39.4	.47999	1.956	.00023	1.59	17 12 06.25
0.310	0.30206	95.2	0.96095	39.5	0.48103	1.956	0.00025	1.59	17 12 08.56
.311	.30271	95.2	.96151	39.9	.48207	1.957	.00028	1.60	17 12 10.88
.312	.30336	95.2	.96207	39.7	.48311	1.957	.00030	1.60	17 12 13.19
.313	.30401	95.1	.96263	39.8	.48415	1.957	.00033	1.61	17 12 15.50
.314	.30466	95.1	.96319	39.9	.48519	1.957	.00035	1.61	17 12 17.81
0.315	0.30531	95.1	0.96375	39.9	0.48623	1.958	0.00038	1.62	17 12 20.12
.316	.30596	95.0	.96431	39.9	.48727	1.958	.00040	1.62	17 12 22.43
.317	.30661	95.0	.96487	39.7	.48831	1.958	.00043	1.63	17 12 24.74
.318	.30726	95.0	.96543	39.3	.48935	1.959	.00045	1.63	17 12 27.05
.319	.30791	95.0	.96599	39.4	.49039	1.958	.00048	1.63	17 12 29.36
0.320	0.30856	94.9	0.96655	39.5	0.49143	1.958	0.00050	1.64	17 12 31.67
.321	.30921	94.9	.96711	39.6	.49247	1.959	.00053	1.64	17 12 33.98
.322	.30986	94.9	.96767	39.6	.49351	1.959	.00055	1.64	17 12 36.29
.323	.31051	94.8	.96823	39.7	.49455	1.959	.00058	1.65	17 12 38.60
.324	.31116	94.8	.96879	39.8	.49559	1.959	.00060	1.65	17 12 40.91
0.325	0.31181	94.8	0.96935	39.9	0.49663	1.960	0.00063	1.65	17 12 43.22
.326	.31246	94.7	.96991	39.9	.49767	1.960	.00065	1.67	17 12 45.53
.327	.31311	94.7	.97047	39.4	.49871	1.960	.00068	1.67	17 12 47.84
.328	.31376	94.7	.97103	39.2	.49975	1.960	.00070	1.68	17 12 50.15
.329	.31441	94.6	.97159	39.3	.50079	1.961	.00073	1.68	17 12 52.46
0.330	0.31506	94.6	0.97215	39.3	0.50183	1.961	0.00075	1.69	17 12 54.77
.331	.31571	94.6	.97271	39.5	.50287	1.961	.00078	1.69	17 12 57.08
.332	.31636	94.5	.97327	39.5	.50391	1.961	.00080	1.69	17 12 59.39
.333	.31701	94.5	.97383	39.7	.50495	1.961	.00083	1.70	17 13 01.70
.334	.31766	94.5	.97439	39.8	.50599	1.962	.00085	1.70	17 13 04.01
0.335	0.31831	94.4	0.97495	39.9	0.50703	1.962	0.00088	1.71	17 13 06.32
.336	.31896	94.4	.97551	39.9	.50807	1.962	.00090	1.71	17 13 08.63
.337	.31961	94.4	.97607	39.9	.50911	1.962	.00093	1.71	17 13 10.94
.338	.32026	94.3	.97663	39.7	.51015	1.962	.00095	1.72	17 13 13.25
.339	.32091	94.3	.97719	39.3	.51119	1.962	.00098	1.72	17 13 15.56
0.340	0.32156	94.3	0.97775	39.3	0.51223	1.963	0.00100	1.73	17 13 17.87
.341	.32221	94.3	.97831	39.4	.51327	1.963	.00103	1.73	17 13 20.18
.342	.32286	94.2	.97887	39.5	.51431	1.963	.00105	1.73	17 13 22.49
.343	.32351	94.2	.97943	39.5	.51535	1.963	.00108	1.74	17 13 24.80
.344	.32416	94.1	.97999	39.6	.51639	1.963	.00110	1.74	17 13 27.11
.345	.32481	94.1	.98055	39.7	.51743	1.963	.00113	1.74	17 13 29.42
0.346	0.32546	94.1	0.98111	39.8	0.51847	1.964	0.00115	1.75	17 13 31.73
.347	.32611	94.1	.98167	39.9	.51951	1.964	.00118	1.75	17 13 34.04
.348	.32676	94.0	.98223	39.9	.52055	1.964	.00120	1.75	17 13 36.35
.349	.32741	94.0	.98279	39.9	.52159	1.964	.00123	1.76	17 13 38.66
.350	.32806	94.0	.98335	39.7	.52263	1.964	.00125	1.76	17 13 40.97
0.351	0.32871	93.9	0.98391	39.8	0.52367	1.964	0.00128	1.76	17 13 43.28
.352	.32936	93.9	.98447	39.8	.52471	1.964	.00130	1.77	17 13 45.59
.353	.33001	93.9	.98503	39.5	.52575	1.964	.00133	1.77	17 13 47.90
.354	.33066	93.8	.98559	39.6	.52679	1.964	.00135	1.77	17 13 50.21
.355	.33131	93.8	.98615	39.6	.52783	1.964	.00138	1.78	17 13 52.52
.356	.33196	93.8	.98671	39.7	.52887	1.964	.00140	1.78	17 13 54.83
.357	.33261	93.7	.98727	39.7	.52991	1.964	.00143	1.78	17 13 57.14
.358	.33326	93.7	.98783	39.9	.53095	1.965	.00145	1.79	17 13 59.45
.359	.33391	93.7	.98839	39.9	.53199	1.965	.00148	1.79	17 14 01.76
0.360	0.33456	93.6	0.98895	39.9	0.53303	1.965	0.00150	1.80	17 14 04.07
.361	.33521	93.6	.98951	39.9	.53407	1.965	.00153	1.80	17 14 06.38
.362	.33586	93.6	.99007	39.9	.53511	1.965	.00155	1.80	17 14 08.69
.363	.33651	93.5	.99063	39.9	.53615	1.965	.00158	1.81	17 14 11.00
.364	.33716	93.5	.99119	39.9	.53719	1.965	.00160	1.81	17 14 13.31
.365	.33781	93.5	.99175	39.9	.53823	1.965	.00163	1.81	17 14 15.62
.366	.33846	93.4	.99231	39.9	.53927	1.965	.00165	1.82	17 14 17.93
.367	.33911	93.4	.99287	39.9	.54031	1.965	.00168	1.82	17 14 20.24
.368	.33976	93.4	.99343	39.9	.54135	1.965	.00170	1.82	17 14 22.55
.369	.34041	93.3	.99399	39.9	.54239	1.965	.00173	1.83	17 14 24.86
.370	.34106	93.3	.99455	39.9	.54343	1.965	.00175	1.83	17 14 27.17
0.371	0.34171	93.3	0.99511	39.9	0.54447	1.966	0.00178	1.83	17 14 29.48
.372	.34236	93.3	.99567	39.9	.54551	1.966	.00180	1.84	17 14 31.79
.373	.34301	93.2	.99623	39.9	.54655	1.966	.00183	1.84	17 14 34.10
.374	.34366	93.2	.99679	39.9	.54759	1.966	.00185	1.84	17 14 36.41
.375	.34431	93.2	.99735	39.9	.54863	1.966	.00188	1.85	17 14 38.72
.376	.34496	93.1	.99791	39.9	.54967	1.966	.00190	1.85	17 14 41.03
.377	.34561	93.1	.99847	39.9	.55071	1.966	.00193	1.85	17 14 43.34
.378	.34626	93.1	.99903	39.9	.55175	1.966	.00195	1.86	17 14 45.65
.379	.34691	93.0	.99959	39.9	.55279	1.966	.00198	1.86	17 14 47.96
.380	.34756	93.0	.99915	39.9	.55383	1.966	.00200	1.86	17 14 50.27
0.381	0.34821	93.0	0.99971	39.9	0.55487	1.967	0.00203	1.87	17 14 52.58
.382	.34886	93.0	.99927	39.9	.55591	1.967	.00205	1.87	17 14 54.89
.383	.34951	92.9	.99983	39.9	.55695	1.967	.00208	1.87	17 14 57.20
.384	.35016	92.9	.99939	39.9	.55799	1.967	.00210	1.88	17 14 59.51
.385	.35081	92.9	.99995	39.9	.55903	1.967	.00213	1.88	17 15 01.82
.386	.35146	92.9	.99951	39.9	.56007	1.967	.00215	1.88	17 15 04.13
.387	.35211	92.8	.99907	39.9	.56111	1.967	.00218	1.89	17 15 06.44
.388	.35276	92.8	.99863	39.9	.56215	1.967	.00220	1.89	17 15 08.75
.389	.35341	92.8	.99819	39.9	.56319	1.967	.00223	1.89	17 15 11.06
.390	.35406	92.8	.99875	39.9	.56423	1.967	.00225	1.90	17 15 13.37
0.391	0.35471	92.7	0.99931	39.9	0.56527	1.967	0.00228	1.90	17 15 15.68
.392	.35536	92.7	.99987	39.9	.56631	1.967	.00230	1.90	17 15 17.99
.393	.35601	92.7	.99943	39.9	.56735	1.967	.00233	1.91	17 15 20.30
.394	.35666	92.7	.99899	39.9	.56839	1.967	.00235	1.91	17 15 22.61
.395	.35731	92.6	.99855	39.9	.56943	1.967	.00238	1.91	17 15 24.92
.396	.35796	92.6	.99811	39.9	.57047	1.967	.00240	1.92	17 15 27.23
.397	.35861	92.6	.99767	39.9	.57151	1.967	.00243	1.92	17 15 29.54
.398	.35926	92.6	.99723	39.9	.57255	1.967	.00245	1.92	17 15 31.85
.399	.35991	92.5	.99679	39.9	.57359	1.967	.00248	1.93	17 15 34.16
0.400	0.36056	92.5	0.99635	39.9	0.57463	1.967	0.00250	1.93	17 15 36.47
.401	.36121	92.5	.99591	39.9	.57567	1.967	.00253	1.93	17 15 38.78
.402	.36186	92.5	.99547	39.9	.57671	1.967	.00255	1.94	17 15 41.09
.403	.36251	92.4	.99503	39.9	.57775	1.967	.00258	1.94	17 15 43.40
.404	.36316	92.4	.99459	39.9	.57879	1.967	.00260	1.94	17 15 45.71
.405	.36381	92.4	.99415	39.9	.57983	1.967	.00263	1.95	17 15 48.02
.406	.36446	92.4	.99371	39.9	.58087	1.967	.00265	1.95	17 15 50.33
.407	.36511	92.3	.99327	39.9	.58191	1.967	.00268	1.95	17 15 52.64
.408	.36576	92.3	.99283	39.9	.58295	1.967	.00270	1.96	17 15 54.95
.409	.36641	92.3	.99239	39.9	.58399	1.967	.00273	1.96	17 15 57.26
.410	.36706	92.3	.99195	39.9	.58503	1.967	.00275	1.96	17 15 59.57
.411	.36771	92.2	.99151	39.9	.58607	1.967	.00278	1.97	17 16 01.88
.412	.36836	92.2	.99107	39.9	.58711	1.967	.00280	1.97	17 16 04.19
.413	.36901	92.2	.99063	39.9	.58815	1.967			

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
0.350	0.34209	93.9	0.93407	34.3	9.53516	116.6	9.57281	15.0	20 01 12.68
.351	.34381	94.0	.93093	34.1	.53925	116.6	.57288	15.0	20 01 28.05
.352	.34558	94.1	.92781	34.5	.54334	116.2	.57292	15.0	20 10 05.21
.353	.34731	94.2	.92471	34.9	.54742	117.9	.57295	15.0	20 11 31.48
.354	.34901	94.3	.92163	34.7	.55150	117.5	.57290	15.1	20 10 57.74
0.355	0.34799	94.8	0.91765	34.8	0.54669	117.2	0.57284	15.1	20 20 24.01
.356	.34951	94.7	.91370	34.9	.54224	116.8	.57185	15.1	20 21 50.27
.357	.34999	94.7	.90965	34.9	.54340	116.4	.57172	15.2	20 27 16.54
.358	.35040	94.7	.90560	35.0	.54457	116.1	.57155	15.2	20 30 42.86
.359	.35131	94.8	.90165	35.1	.54573	115.7	.57139	15.3	20 34 09.07
0.360	0.35227	94.6	0.91900	35.2	0.54688	115.4	0.57123	15.3	20 37 35.31
.361	.35321	94.6	.91551	35.3	.54803	115.0	.57106	15.4	20 41 01.60
.362	.35415	94.5	.91190	35.1	.54918	114.7	.57090	15.4	20 44 27.85
.363	.35508	94.5	.90841	35.5	.55033	114.3	.57074	15.5	20 47 54.12
.364	.35601	94.4	.90448	35.6	.55147	114.0	.57057	15.5	20 51 20.39
0.365	0.35695	94.3	0.91112	35.7	0.55261	113.7	0.57040	15.6	20 54 46.65
.366	.35788	94.3	.90727	35.8	.55371	113.3	.57024	15.6	20 58 12.92
.367	.35881	94.3	.90341	35.9	.55480	113.0	.57007	15.7	21 01 39.18
.368	.35975	94.3	.90315	36.0	.55600	112.6	.56990	15.7	21 05 05.45
.369	.36068	94.3	.90169	36.1	.55713	112.3	.56974	15.8	21 08 31.71
0.370	0.36162	94.2	0.90433	36.2	0.55825	112.0	0.56957	15.8	21 11 57.98
.371	.36255	94.2	.90107	36.3	.55937	111.6	.56940	15.9	21 15 24.24
.372	.36348	94.2	.90100	36.3	.56048	111.3	.56923	15.9	21 18 50.51
.373	.36441	94.1	.90124	36.4	.56159	111.0	.56906	15.9	21 22 16.77
.374	.36534	94.1	.90087	36.5	.56270	110.7	.56889	15.9	21 25 43.04
0.375	0.36627	94.1	0.90081	36.6	0.56380	110.3	0.56872	15.9	21 29 09.30
.376	.36720	94.0	.90044	36.7	.56491	110.0	.56855	15.9	21 32 35.57
.377	.36813	94.0	.90077	36.8	.56600	109.7	.56838	15.9	21 36 01.83
.378	.36906	94.0	.90030	36.9	.56710	109.4	.56820	15.9	21 39 28.10
.379	.37000	94.0	.90084	37.0	.56819	109.0	.56803	15.9	21 42 54.36
0.380	0.37092	94.0	0.90075	37.1	0.56928	108.7	0.56786	15.9	21 46 20.63
.381	.37185	94.0	.90039	37.2	.57037	108.4	.56769	15.9	21 49 46.89
.382	.37278	94.0	.90072	37.3	.57145	108.1	.56751	15.9	21 53 13.16
.383	.37370	94.0	.90075	37.4	.57253	107.8	.56734	15.9	21 56 39.42
.384	.37463	94.0	.90077	37.5	.57361	107.5	.56716	15.9	22 00 05.69
0.385	0.37555	94.0	0.90070	37.6	0.57468	107.2	0.56699	15.9	22 03 31.95
.386	.37648	94.0	.90042	37.6	.57575	106.9	.56681	15.9	22 06 58.22
.387	.37741	94.0	.90045	37.7	.57682	106.6	.56663	15.9	22 10 24.48
.388	.37834	94.0	.90057	37.8	.57788	106.3	.56645	15.9	22 13 50.74
.389	.37926	94.5	.90059	37.9	.57891	106.0	.56628	15.9	22 17 17.01
0.390	0.38019	94.5	0.90101	38.0	0.58000	105.7	0.56610	15.9	22 20 43.27
.391	.38111	94.5	.90133	38.1	.58106	105.4	.56592	15.9	22 24 09.54
.392	.38204	94.4	.90115	38.2	.58211	105.1	.56574	16.0	22 27 35.80
.393	.38296	94.4	.90170	38.3	.58316	104.8	.56556	16.0	22 31 02.07
.394	.38388	94.3	.90238	38.4	.58420	104.5	.56538	16.1	22 34 28.33
0.395	0.38481	94.3	0.90270	38.5	0.58524	104.2	0.56520	16.1	22 37 54.60
.396	.38573	94.3	.90251	38.6	.58628	103.9	.56502	16.2	22 41 20.86
.397	.38665	94.3	.90223	38.7	.58732	103.6	.56484	16.2	22 44 47.13
.398	.38758	94.2	.90218	38.8	.58835	103.3	.56465	16.2	22 48 13.39
.399	.38850	94.1	.90215	38.8	.58939	103.0	.56447	16.3	22 51 39.65
0.400	0.38942	94.1	0.90210	38.9	0.59042	102.7	0.56429	16.4	22 55 05.92
u	$-\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u

Circular Functions.

α	$\sin \alpha$	$= F_1'$	$\cos \alpha$	$= F_2'$	$\log \sin \alpha$	$= F_3'$	$\log \cos \alpha$	$= F_4'$	α
0.100	0.19612	52.1	0.98029	38.9	9.59942	163.7	0.00000	10.1	52.55 16.42
0.101	0.19634	52.1	0.98017	38.9	9.99112	163.1	0.00010	10.1	52.58 16.40
0.102	0.19655	52.0	0.98005	38.9	9.99247	162.5	0.00020	10.1	52.60 16.38
0.103	0.19676	52.0	0.98003	38.9	9.99382	161.9	0.00030	10.1	52.63 16.36
0.104	0.19697	51.9	0.98000	38.9	9.99517	161.3	0.00040	10.1	52.65 16.34
0.105	0.19718	51.8	0.98000	38.9	9.99652	160.7	0.00050	10.1	52.68 16.32
0.106	0.19739	51.8	0.98000	38.9	9.99787	160.1	0.00060	10.1	52.71 16.30
0.107	0.19760	51.7	0.98000	38.9	9.99922	159.5	0.00070	10.1	52.74 16.28
0.108	0.19781	51.7	0.98000	38.9	9.99957	158.9	0.00080	10.1	52.77 16.26
0.109	0.19802	51.6	0.98000	38.9	9.99992	158.3	0.00090	10.1	52.80 16.24
0.110	0.19823	51.7	0.98000	38.9	9.99992	157.7	0.00100	10.1	52.83 16.22
0.111	0.19844	51.7	0.98000	38.9	9.99992	157.1	0.00110	10.1	52.86 16.20
0.112	0.19865	51.7	0.98000	38.9	9.99992	156.5	0.00120	10.1	52.89 16.18
0.113	0.19886	51.7	0.98000	38.9	9.99992	155.9	0.00130	10.1	52.92 16.16
0.114	0.19907	51.6	0.98000	38.9	9.99992	155.3	0.00140	10.1	52.95 16.14
0.115	0.19928	51.6	0.98000	38.9	9.99992	154.7	0.00150	10.1	52.98 16.12
0.116	0.19949	51.6	0.98000	38.9	9.99992	154.1	0.00160	10.1	53.01 16.10
0.117	0.19970	51.6	0.98000	38.9	9.99992	153.5	0.00170	10.1	53.04 16.08
0.118	0.19991	51.6	0.98000	38.9	9.99992	152.9	0.00180	10.1	53.07 16.06
0.119	0.20012	51.5	0.98000	38.9	9.99992	152.3	0.00190	10.1	53.10 16.04
0.120	0.20033	51.5	0.98000	38.9	9.99992	151.7	0.00200	10.1	53.13 16.02
0.121	0.20054	51.5	0.98000	38.9	9.99992	151.1	0.00210	10.1	53.16 16.00
0.122	0.20075	51.5	0.98000	38.9	9.99992	150.5	0.00220	10.1	53.19 15.98
0.123	0.20096	51.5	0.98000	38.9	9.99992	149.9	0.00230	10.1	53.22 15.96
0.124	0.20117	51.5	0.98000	38.9	9.99992	149.3	0.00240	10.1	53.25 15.94
0.125	0.20138	51.5	0.98000	38.9	9.99992	148.7	0.00250	10.1	53.28 15.92
0.126	0.20159	51.5	0.98000	38.9	9.99992	148.1	0.00260	10.1	53.31 15.90
0.127	0.20180	51.5	0.98000	38.9	9.99992	147.5	0.00270	10.1	53.34 15.88
0.128	0.20201	51.5	0.98000	38.9	9.99992	146.9	0.00280	10.1	53.37 15.86
0.129	0.20222	51.5	0.98000	38.9	9.99992	146.3	0.00290	10.1	53.40 15.84
0.130	0.20243	51.5	0.98000	38.9	9.99992	145.7	0.00300	10.1	53.43 15.82
0.131	0.20264	51.5	0.98000	38.9	9.99992	145.1	0.00310	10.1	53.46 15.80
0.132	0.20285	51.5	0.98000	38.9	9.99992	144.5	0.00320	10.1	53.49 15.78
0.133	0.20306	51.5	0.98000	38.9	9.99992	143.9	0.00330	10.1	53.52 15.76
0.134	0.20327	51.5	0.98000	38.9	9.99992	143.3	0.00340	10.1	53.55 15.74
0.135	0.20348	51.5	0.98000	38.9	9.99992	142.7	0.00350	10.1	53.58 15.72
0.136	0.20369	51.5	0.98000	38.9	9.99992	142.1	0.00360	10.1	53.61 15.70
0.137	0.20390	51.5	0.98000	38.9	9.99992	141.5	0.00370	10.1	53.64 15.68
0.138	0.20411	51.5	0.98000	38.9	9.99992	140.9	0.00380	10.1	53.67 15.66
0.139	0.20432	51.5	0.98000	38.9	9.99992	140.3	0.00390	10.1	53.70 15.64
0.140	0.20453	51.5	0.98000	38.9	9.99992	139.7	0.00400	10.1	53.73 15.62
0.141	0.20474	51.5	0.98000	38.9	9.99992	139.1	0.00410	10.1	53.76 15.60
0.142	0.20495	51.5	0.98000	38.9	9.99992	138.5	0.00420	10.1	53.79 15.58
0.143	0.20516	51.5	0.98000	38.9	9.99992	137.9	0.00430	10.1	53.82 15.56
0.144	0.20537	51.5	0.98000	38.9	9.99992	137.3	0.00440	10.1	53.85 15.54
0.145	0.20558	51.5	0.98000	38.9	9.99992	136.7	0.00450	10.1	53.88 15.52
0.146	0.20579	51.5	0.98000	38.9	9.99992	136.1	0.00460	10.1	53.91 15.50
0.147	0.20600	51.5	0.98000	38.9	9.99992	135.5	0.00470	10.1	53.94 15.48
0.148	0.20621	51.5	0.98000	38.9	9.99992	134.9	0.00480	10.1	53.97 15.46
0.149	0.20642	51.5	0.98000	38.9	9.99992	134.3	0.00490	10.1	54.00 15.44
0.150	0.20663	51.5	0.98000	38.9	9.99992	133.7	0.00500	10.1	54.03 15.42
0.151	0.20684	51.5	0.98000	38.9	9.99992	133.1	0.00510	10.1	54.06 15.40
0.152	0.20705	51.5	0.98000	38.9	9.99992	132.5	0.00520	10.1	54.09 15.38
0.153	0.20726	51.5	0.98000	38.9	9.99992	131.9	0.00530	10.1	54.12 15.36
0.154	0.20747	51.5	0.98000	38.9	9.99992	131.3	0.00540	10.1	54.15 15.34
0.155	0.20768	51.5	0.98000	38.9	9.99992	130.7	0.00550	10.1	54.18 15.32
0.156	0.20789	51.5	0.98000	38.9	9.99992	130.1	0.00560	10.1	54.21 15.30
0.157	0.20810	51.5	0.98000	38.9	9.99992	129.5	0.00570	10.1	54.24 15.28
0.158	0.20831	51.5	0.98000	38.9	9.99992	128.9	0.00580	10.1	54.27 15.26
0.159	0.20852	51.5	0.98000	38.9	9.99992	128.3	0.00590	10.1	54.30 15.24
0.160	0.20873	51.5	0.98000	38.9	9.99992	127.7	0.00600	10.1	54.33 15.22
0.161	0.20894	51.5	0.98000	38.9	9.99992	127.1	0.00610	10.1	54.36 15.20
0.162	0.20915	51.5	0.98000	38.9	9.99992	126.5	0.00620	10.1	54.39 15.18
0.163	0.20936	51.5	0.98000	38.9	9.99992	125.9	0.00630	10.1	54.42 15.16
0.164	0.20957	51.5	0.98000	38.9	9.99992	125.3	0.00640	10.1	54.45 15.14
0.165	0.20978	51.5	0.98000	38.9	9.99992	124.7	0.00650	10.1	54.48 15.12
0.166	0.21000	51.5	0.98000	38.9	9.99992	124.1	0.00660	10.1	54.51 15.10
0.167	0.21021	51.5	0.98000	38.9	9.99992	123.5	0.00670	10.1	54.54 15.08
0.168	0.21042	51.5	0.98000	38.9	9.99992	122.9	0.00680	10.1	54.57 15.06
0.169	0.21063	51.5	0.98000	38.9	9.99992	122.3	0.00690	10.1	54.60 15.04
0.170	0.21084	51.5	0.98000	38.9	9.99992	121.7	0.00700	10.1	54.63 15.02
0.171	0.21105	51.5	0.98000	38.9	9.99992	121.1	0.00710	10.1	54.66 15.00
0.172	0.21126	51.5	0.98000	38.9	9.99992	120.5	0.00720	10.1	54.69 14.98
0.173	0.21147	51.5	0.98000	38.9	9.99992	119.9	0.00730	10.1	54.72 14.96
0.174	0.21168	51.5	0.98000	38.9	9.99992	119.3	0.00740	10.1	54.75 14.94
0.175	0.21189	51.5	0.98000	38.9	9.99992	118.7	0.00750	10.1	54.78 14.92
0.176	0.21210	51.5	0.98000	38.9	9.99992	118.1	0.00760	10.1	54.81 14.90
0.177	0.21231	51.5	0.98000	38.9	9.99992	117.5	0.00770	10.1	54.84 14.88
0.178	0.21252	51.5	0.98000	38.9	9.99992	116.9	0.00780	10.1	54.87 14.86
0.179	0.21273	51.5	0.98000	38.9	9.99992	116.3	0.00790	10.1	54.90 14.84
0.180	0.21294	51.5	0.98000	38.9	9.99992	115.7	0.00800	10.1	54.93 14.82
0.181	0.21315	51.5	0.98000	38.9	9.99992	115.1	0.00810	10.1	54.96 14.80
0.182	0.21336	51.5	0.98000	38.9	9.99992	114.5	0.00820	10.1	54.99 14.78
0.183	0.21357	51.5	0.98000	38.9	9.99992	113.9	0.00830	10.1	55.02 14.76
0.184	0.21378	51.5	0.98000	38.9	9.99992	113.3	0.00840	10.1	55.05 14.74
0.185	0.21399	51.5	0.98000	38.9	9.99992	112.7	0.00850	10.1	55.08 14.72
0.186	0.21420	51.5	0.98000	38.9	9.99992	112.1	0.00860	10.1	55.11 14.70
0.187	0.21441	51.5	0.98000	38.9	9.99992	111.5	0.00870	10.1	55.14 14.68
0.188	0.21462	51.5	0.98000	38.9	9.99992	110.9	0.00880	10.1	55.17 14.66
0.189	0.21483	51.5	0.98000	38.9	9.99992	110.3	0.00890	10.1	55.20 14.64
0.190	0.21504	51.5	0.98000	38.9	9.99992	109.7	0.00900	10.1	55.23 14.62
0.191	0.21525	51.5	0.98000	38.9	9.99992	109.1	0.00910	10.1	55.26 14.60
0.192	0.21546	51.5	0.98000	38.9	9.99992	108.5	0.00920	10.1	55.29 14.58
0.193	0.21567	51.5	0.98000	38.9	9.99992	107.9	0.00930	10.1	55.32 14.56
0.194	0.21588	51.5	0.98000	38.9	9.99992	107.3	0.00940	10.1	55.35 14.54
0.195	0.21609	51.5	0.98000	38.9	9.99992	106.7	0.00950	10.1	55.38 14.52
0.196	0.21630	51.5	0.98000	38.9	9.99992	106.1	0.00960	10.1	55.41 14.50
0.197	0.21651	51.5	0.98000	38.9	9.99992	105.5	0.00970	10.1	55.44 14.48
0.198	0.21672	51.5	0.98000	38.9	9.99992	104.9	0.00980	10.1	55.47 14.46
0.199	0.21693	51.5	0.98000	38.9	9.99992	104.3	0.00990	10.1	55.50 14.44
0.200	0.21714	51.5	0.98000	38.9	9.99992	103.7	0.01000	10.1	55.53 14.42
0.201	0.21735	51.5	0.98000	38.9	9.99992	103.1	0.01010	10.1	55.56 14.40
0.202	0.21756	51.5	0.98000	38.9	9.99992	102.5	0.01020	10.1	55.59 14.38
0.203	0.21777	51.5	0.98000	38.9	9.99992	101.9	0.01030	10.1	55.62 14.36
0.204	0.21798	51.5	0.98000	38.9	9.99992	101.3	0.01040	10.1	55.65 14.34
0.205	0.21819	51.5	0.98000	38.9	9.99992	100.7	0.01050	10.1	55.68 14.32
0.206	0.21840	51.5	0.98000	38.9	9.99992				

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$
0.130	0.12957	0.99045	0.13045	0.76645	9.63845	8.99955	0.65910	2.34090	2.34090
0.131	0.13072	0.99030	0.13162	0.76585	9.63925	8.99925	0.65945	2.34055	2.34055
0.132	0.13187	0.99015	0.13287	0.76525	9.64010	8.99895	0.65980	2.34020	2.34020
0.133	0.13302	0.99000	0.13407	0.76465	9.64095	8.99870	0.66015	2.33985	2.33985
0.134	0.13417	0.98985	0.13527	0.76405	9.64180	8.99845	0.66050	2.33950	2.33950
0.135	0.13532	0.98970	0.13647	0.76345	9.64265	8.99820	0.66085	2.33915	2.33915
0.136	0.13647	0.98955	0.13767	0.76285	9.64350	8.99795	0.66120	2.33880	2.33880
0.137	0.13762	0.98940	0.13887	0.76225	9.64435	8.99770	0.66155	2.33845	2.33845
0.138	0.13877	0.98925	0.14007	0.76165	9.64520	8.99745	0.66190	2.33810	2.33810
0.139	0.13992	0.98910	0.14127	0.76105	9.64605	8.99720	0.66225	2.33775	2.33775
0.140	0.14107	0.98895	0.14247	0.76045	9.64690	8.99695	0.66260	2.33740	2.33740
0.141	0.14222	0.98880	0.14367	0.75985	9.64775	8.99670	0.66295	2.33705	2.33705
0.142	0.14337	0.98865	0.14487	0.75925	9.64860	8.99645	0.66330	2.33670	2.33670
0.143	0.14452	0.98850	0.14607	0.75865	9.64945	8.99620	0.66365	2.33635	2.33635
0.144	0.14567	0.98835	0.14727	0.75805	9.65030	8.99595	0.66400	2.33600	2.33600
0.145	0.14682	0.98820	0.14847	0.75745	9.65115	8.99570	0.66435	2.33565	2.33565
0.146	0.14797	0.98805	0.14967	0.75685	9.65200	8.99545	0.66470	2.33530	2.33530
0.147	0.14912	0.98790	0.15087	0.75625	9.65285	8.99520	0.66505	2.33495	2.33495
0.148	0.15027	0.98775	0.15207	0.75565	9.65370	8.99495	0.66540	2.33460	2.33460
0.149	0.15142	0.98760	0.15327	0.75505	9.65455	8.99470	0.66575	2.33425	2.33425
0.150	0.15257	0.98745	0.15447	0.75445	9.65540	8.99445	0.66610	2.33390	2.33390
0.151	0.15372	0.98730	0.15567	0.75385	9.65625	8.99420	0.66645	2.33355	2.33355
0.152	0.15487	0.98715	0.15687	0.75325	9.65710	8.99395	0.66680	2.33320	2.33320
0.153	0.15602	0.98700	0.15807	0.75265	9.65795	8.99370	0.66715	2.33285	2.33285
0.154	0.15717	0.98685	0.15927	0.75205	9.65880	8.99345	0.66750	2.33250	2.33250
0.155	0.15832	0.98670	0.16047	0.75145	9.65965	8.99320	0.66785	2.33215	2.33215
0.156	0.15947	0.98655	0.16167	0.75085	9.66050	8.99295	0.66820	2.33180	2.33180
0.157	0.16062	0.98640	0.16287	0.75025	9.66135	8.99270	0.66855	2.33145	2.33145
0.158	0.16177	0.98625	0.16407	0.74965	9.66220	8.99245	0.66890	2.33110	2.33110
0.159	0.16292	0.98610	0.16527	0.74905	9.66305	8.99220	0.66925	2.33075	2.33075
0.160	0.16407	0.98595	0.16647	0.74845	9.66390	8.99195	0.66960	2.33040	2.33040
0.161	0.16522	0.98580	0.16767	0.74785	9.66475	8.99170	0.66995	2.33005	2.33005
0.162	0.16637	0.98565	0.16887	0.74725	9.66560	8.99145	0.67030	2.32970	2.32970
0.163	0.16752	0.98550	0.17007	0.74665	9.66645	8.99120	0.67065	2.32935	2.32935
0.164	0.16867	0.98535	0.17127	0.74605	9.66730	8.99095	0.67100	2.32900	2.32900
0.165	0.16982	0.98520	0.17247	0.74545	9.66815	8.99070	0.67135	2.32865	2.32865
0.166	0.17097	0.98505	0.17367	0.74485	9.66900	8.99045	0.67170	2.32830	2.32830
0.167	0.17212	0.98490	0.17487	0.74425	9.66985	8.99020	0.67205	2.32795	2.32795
0.168	0.17327	0.98475	0.17607	0.74365	9.67070	8.99000	0.67240	2.32760	2.32760
0.169	0.17442	0.98460	0.17727	0.74305	9.67155	8.98975	0.67275	2.32725	2.32725
0.170	0.17557	0.98445	0.17847	0.74245	9.67240	8.98950	0.67310	2.32690	2.32690
0.171	0.17672	0.98430	0.17967	0.74185	9.67325	8.98925	0.67345	2.32655	2.32655
0.172	0.17787	0.98415	0.18087	0.74125	9.67410	8.98900	0.67380	2.32620	2.32620
0.173	0.17902	0.98400	0.18207	0.74065	9.67495	8.98875	0.67415	2.32585	2.32585
0.174	0.18017	0.98385	0.18327	0.74005	9.67580	8.98850	0.67450	2.32550	2.32550
0.175	0.18132	0.98370	0.18447	0.73945	9.67665	8.98825	0.67485	2.32515	2.32515
0.176	0.18247	0.98355	0.18567	0.73885	9.67750	8.98800	0.67520	2.32480	2.32480
0.177	0.18362	0.98340	0.18687	0.73825	9.67835	8.98775	0.67555	2.32445	2.32445
0.178	0.18477	0.98325	0.18807	0.73765	9.67920	8.98750	0.67590	2.32410	2.32410
0.179	0.18592	0.98310	0.18927	0.73705	9.68005	8.98725	0.67625	2.32375	2.32375
0.180	0.18707	0.98295	0.19047	0.73645	9.68090	8.98700	0.67660	2.32340	2.32340
0.181	0.18822	0.98280	0.19167	0.73585	9.68175	8.98675	0.67695	2.32305	2.32305
0.182	0.18937	0.98265	0.19287	0.73525	9.68260	8.98650	0.67730	2.32270	2.32270
0.183	0.19052	0.98250	0.19407	0.73465	9.68345	8.98625	0.67765	2.32235	2.32235
0.184	0.19167	0.98235	0.19527	0.73405	9.68430	8.98600	0.67800	2.32200	2.32200
0.185	0.19282	0.98220	0.19647	0.73345	9.68515	8.98575	0.67835	2.32165	2.32165
0.186	0.19397	0.98205	0.19767	0.73285	9.68600	8.98550	0.67870	2.32130	2.32130
0.187	0.19512	0.98190	0.19887	0.73225	9.68685	8.98525	0.67905	2.32095	2.32095
0.188	0.19627	0.98175	0.20007	0.73165	9.68770	8.98500	0.67940	2.32060	2.32060
0.189	0.19742	0.98160	0.20127	0.73105	9.68855	8.98475	0.67975	2.32025	2.32025
0.190	0.19857	0.98145	0.20247	0.73045	9.68940	8.98450	0.68010	2.31990	2.31990
0.191	0.19972	0.98130	0.20367	0.72985	9.69025	8.98425	0.68045	2.31955	2.31955
0.192	0.20087	0.98115	0.20487	0.72925	9.69110	8.98400	0.68080	2.31920	2.31920
0.193	0.20202	0.98100	0.20607	0.72865	9.69195	8.98375	0.68115	2.31885	2.31885
0.194	0.20317	0.98085	0.20727	0.72805	9.69280	8.98350	0.68150	2.31850	2.31850
0.195	0.20432	0.98070	0.20847	0.72745	9.69365	8.98325	0.68185	2.31815	2.31815
0.196	0.20547	0.98055	0.20967	0.72685	9.69450	8.98300	0.68220	2.31780	2.31780
0.197	0.20662	0.98040	0.21087	0.72625	9.69535	8.98275	0.68255	2.31745	2.31745
0.198	0.20777	0.98025	0.21207	0.72565	9.69620	8.98250	0.68290	2.31710	2.31710
0.199	0.20892	0.98010	0.21327	0.72505	9.69705	8.98225	0.68325	2.31675	2.31675
0.200	0.21007	0.98000	0.21447	0.72445	9.69790	8.98200	0.68360	2.31640	2.31640
0.201	0.21122	0.97985	0.21567	0.72385	9.69875	8.98175	0.68395	2.31605	2.31605
0.202	0.21237	0.97970	0.21687	0.72325	9.69960	8.98150	0.68430	2.31570	2.31570
0.203	0.21352	0.97955	0.21807	0.72265	9.70045	8.98125	0.68465	2.31535	2.31535
0.204	0.21467	0.97940	0.21927	0.72205	9.70130	8.98100	0.68500	2.31500	2.31500
0.205	0.21582	0.97925	0.22047	0.72145	9.70215	8.98075	0.68535	2.31465	2.31465
0.206	0.21697	0.97910	0.22167	0.72085	9.70300	8.98050	0.68570	2.31430	2.31430
0.207	0.21812	0.97895	0.22287	0.72025	9.70385	8.98025	0.68605	2.31395	2.31395
0.208	0.21927	0.97880	0.22407	0.71965	9.70470	8.98000	0.68640	2.31360	2.31360
0.209	0.22042	0.97865	0.22527	0.71905	9.70555	8.97975	0.68675	2.31325	2.31325
0.210	0.22157	0.97850	0.22647	0.71845	9.70640	8.97950	0.68710	2.31290	2.31290
0.211	0.22272	0.97835	0.22767	0.71785	9.70725	8.97925	0.68745	2.31255	2.31255
0.212	0.22387	0.97820	0.22887	0.71725	9.70810	8.97900	0.68780	2.31220	2.31220
0.213	0.22502	0.97805	0.23007	0.71665	9.70895	8.97875	0.68815	2.31185	2.31185
0.214	0.22617	0.97790	0.23127	0.71605	9.70980	8.97850	0.68850	2.31150	2.31150
0.215	0.22732	0.97775	0.23247	0.71545	9.71065	8.97825	0.68885	2.31115	2.31115
0.216	0.22847	0.97760	0.23367	0.71485	9.71150	8.97800	0.68920	2.31080	2.31080
0.217	0.22962	0.97745	0.23487	0.71425	9.71235	8.97775	0.68955	2.31045	2.31045
0.218	0.23077	0.97730	0.23607	0.71365	9.71320	8.97750	0.68990	2.31010	2.31010
0.219	0.23192	0.97715	0.23727	0.71305	9.71405	8.97725	0.69025	2.30975	2.30975
0.220	0.23307	0.97700	0.23847	0.71245	9.71490	8.97700	0.69060	2.30940	2.30940
0.221	0.23422	0.97685	0.23967	0.71185	9.71575	8.97675	0.69095	2.30905	2.30905
0.222	0.23537	0.97670	0.24087	0.71125	9.71660	8.97650	0.69130	2.30870	2.30870
0.223	0.23652	0.97655	0.24207	0.71065	9.71745	8.97625	0.69165	2.30835	2.30835
0.224	0.23767	0.97640	0.24327	0.71005	9.71830	8.97600	0.69200	2.30800	2.30800
0.225	0.23882	0.97625	0.24447	0.70945	9.71915	8.97575	0.69235	2.30765	2.30765
0.226	0.23997	0.97610	0.24567	0.70885	9.72000	8.97550	0.69270	2.30730	2.30730
0.227	0.24112	0.97595	0.24687	0.70825	9.72085	8.97525	0.69305	2.30695	2.30695
0.228	0.24227	0.97580	0.24807						

Circular Functions.

x	$\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	x
0.900	0.78141	87.8	0.62738	42.0	0.48807	70.5	0.94181	15.2	51.38 51.40
.901	.78191	87.7	.62710	41.9	.48815	70.1	.94185	15.2	51.42 51.47
.902	.78241	87.7	.62682	41.8	.48824	70.1	.94189	15.2	51.45 51.51
.903	.78291	87.6	.62654	41.7	.48832	70.0	.94193	15.2	51.48 51.54
.904	.78341	87.6	.62626	41.6	.48841	70.0	.94197	15.2	51.51 51.57
0.905	0.78391	87.5	0.62597	41.5	0.48850	70.0	0.94200	15.0	51.54 51.63
.906	.78441	87.5	.62569	41.5	.48858	70.1	.94205	15.1	51.57 51.69
.907	.78491	87.4	.62541	41.4	.48867	70.2	.94209	15.1	51.60 51.70
.908	.78541	87.4	.62513	41.3	.48875	70.2	.94213	15.2	51.63 51.74
.909	.78591	87.3	.62485	41.2	.48884	70.2	.94217	15.2	51.66 51.79
0.910	0.78641	87.3	0.62457	41.2	0.48893	70.2	0.94220	15.1	51.69 51.85
.911	.78691	87.2	.62429	41.1	.48901	70.3	.94224	15.1	51.72 51.91
.912	.78741	87.2	.62401	41.0	.48910	70.3	.94228	15.1	51.75 51.98
.913	.78791	87.1	.62373	40.9	.48918	70.3	.94232	15.1	51.78 52.05
.914	.78841	87.1	.62345	40.8	.48927	70.3	.94236	15.1	51.81 52.11
0.915	0.78891	87.0	0.62317	40.8	0.48935	70.2	0.94240	15.0	51.84 52.18
.916	.78941	87.0	.62289	40.7	.48944	70.3	.94244	15.0	51.87 52.25
.917	.78991	86.9	.62261	40.6	.48952	70.4	.94248	15.0	51.90 52.32
.918	.79041	86.9	.62233	40.5	.48961	70.4	.94252	15.0	51.93 52.39
.919	.79091	86.8	.62205	40.4	.48969	70.5	.94256	15.1	51.96 52.46
0.920	0.79141	86.8	0.62177	40.4	0.48978	70.5	0.94260	15.1	51.99 52.53
.921	.79191	86.7	.62149	40.3	.48986	70.6	.94264	15.1	52.02 52.60
.922	.79241	86.7	.62121	40.2	.48995	70.6	.94268	15.1	52.05 52.67
.923	.79291	86.6	.62093	40.1	.49003	70.7	.94272	15.1	52.08 52.74
.924	.79341	86.6	.62065	40.0	.49012	70.7	.94276	15.1	52.11 52.81
0.925	0.79391	86.5	0.62037	39.9	0.49020	70.8	0.94280	15.0	52.14 52.88
.926	.79441	86.5	.62009	39.8	.49029	70.8	.94284	15.0	52.17 52.95
.927	.79491	86.4	.61981	39.7	.49037	70.9	.94288	15.0	52.20 53.02
.928	.79541	86.4	.61953	39.6	.49046	70.9	.94292	15.0	52.23 53.09
.929	.79591	86.3	.61925	39.5	.49054	71.0	.94296	15.1	52.26 53.16
0.930	0.79641	86.3	0.61897	39.5	0.49063	71.0	0.94300	15.1	52.29 53.23
.931	.79691	86.2	.61869	39.4	.49071	71.1	.94304	15.1	52.32 53.30
.932	.79741	86.2	.61841	39.3	.49080	71.1	.94308	15.1	52.35 53.37
.933	.79791	86.1	.61813	39.2	.49088	71.2	.94312	15.1	52.38 53.44
.934	.79841	86.1	.61785	39.1	.49097	71.2	.94316	15.1	52.41 53.51
0.935	0.79891	86.0	0.61757	39.0	0.49105	71.3	0.94320	15.0	52.44 53.58
.936	.79941	86.0	.61729	38.9	.49114	71.3	.94324	15.0	52.47 53.65
.937	.79991	85.9	.61701	38.8	.49122	71.4	.94328	15.0	52.50 53.72
.938	.80041	85.9	.61673	38.7	.49131	71.4	.94332	15.0	52.53 53.79
.939	.80091	85.8	.61645	38.6	.49139	71.5	.94336	15.0	52.56 53.86
0.940	0.80141	85.8	0.61617	38.5	0.49148	71.5	0.94340	15.0	52.59 53.93
.941	.80191	85.7	.61589	38.4	.49156	71.6	.94344	15.0	52.62 54.00
.942	.80241	85.7	.61561	38.3	.49165	71.6	.94348	15.0	52.65 54.07
.943	.80291	85.6	.61533	38.2	.49173	71.7	.94352	15.0	52.68 54.14
.944	.80341	85.6	.61505	38.1	.49182	71.7	.94356	15.0	52.71 54.21
0.945	0.80391	85.5	0.61477	38.0	0.49190	71.8	0.94360	15.0	52.74 54.28
.946	.80441	85.5	.61449	37.9	.49199	71.8	.94364	15.0	52.77 54.35
.947	.80491	85.4	.61421	37.8	.49207	71.9	.94368	15.0	52.80 54.42
.948	.80541	85.4	.61393	37.7	.49216	71.9	.94372	15.0	52.83 54.49
.949	.80591	85.3	.61365	37.6	.49224	72.0	.94376	15.0	52.86 54.56
0.950	0.80641	85.3	0.61337	37.5	0.49233	72.0	0.94380	15.0	52.89 54.63
.951	.80691	85.2	.61309	37.4	.49241	72.1	.94384	15.0	52.92 54.70
.952	.80741	85.2	.61281	37.3	.49250	72.1	.94388	15.0	52.95 54.77
.953	.80791	85.1	.61253	37.2	.49258	72.2	.94392	15.0	52.98 54.84
.954	.80841	85.1	.61225	37.1	.49267	72.2	.94396	15.0	53.01 54.91
0.955	0.80891	85.0	0.61197	37.0	0.49275	72.3	0.94400	15.0	53.04 54.98
.956	.80941	85.0	.61169	36.9	.49284	72.3	.94404	15.0	53.07 55.05
.957	.80991	84.9	.61141	36.8	.49292	72.4	.94408	15.0	53.10 55.12
.958	.81041	84.9	.61113	36.7	.49301	72.4	.94412	15.0	53.13 55.19
.959	.81091	84.8	.61085	36.6	.49309	72.5	.94416	15.0	53.16 55.26
0.960	0.81141	84.8	0.61057	36.5	0.49318	72.5	0.94420	15.0	53.19 55.33
.961	.81191	84.7	.61029	36.4	.49326	72.6	.94424	15.0	53.22 55.40
.962	.81241	84.7	.60999	36.3	.49335	72.6	.94428	15.0	53.25 55.47
.963	.81291	84.6	.60971	36.2	.49343	72.7	.94432	15.0	53.28 55.54
.964	.81341	84.6	.60943	36.1	.49352	72.7	.94436	15.0	53.31 55.61
0.965	0.81391	84.5	0.60915	36.0	0.49360	72.8	0.94440	15.0	53.34 55.68
.966	.81441	84.5	.60887	35.9	.49369	72.8	.94444	15.0	53.37 55.75
.967	.81491	84.4	.60859	35.8	.49377	72.9	.94448	15.0	53.40 55.82
.968	.81541	84.4	.60831	35.7	.49386	72.9	.94452	15.0	53.43 55.89
.969	.81591	84.3	.60803	35.6	.49394	73.0	.94456	15.0	53.46 55.96
0.970	0.81641	84.3	0.60775	35.5	0.49403	73.0	0.94460	15.0	53.49 56.03
.971	.81691	84.2	.60747	35.4	.49411	73.1	.94464	15.0	53.52 56.10
.972	.81741	84.2	.60719	35.3	.49420	73.1	.94468	15.0	53.55 56.17
.973	.81791	84.1	.60691	35.2	.49428	73.2	.94472	15.0	53.58 56.24
.974	.81841	84.1	.60663	35.1	.49437	73.2	.94476	15.0	53.61 56.31
0.975	0.81891	84.0	0.60635	35.0	0.49445	73.3	0.94480	15.0	53.64 56.38
.976	.81941	84.0	.60607	34.9	.49454	73.3	.94484	15.0	53.67 56.45
.977	.81991	83.9	.60579	34.8	.49462	73.4	.94488	15.0	53.70 56.52
.978	.82041	83.9	.60551	34.7	.49471	73.4	.94492	15.0	53.73 56.59
.979	.82091	83.8	.60523	34.6	.49479	73.5	.94496	15.0	53.76 56.66
0.980	0.82141	83.8	0.60495	34.5	0.49488	73.5	0.94500	15.0	53.79 56.73
.981	.82191	83.7	.60467	34.4	.49496	73.6	.94504	15.0	53.82 56.80
.982	.82241	83.7	.60439	34.3	.49505	73.6	.94508	15.0	53.85 56.87
.983	.82291	83.6	.60411	34.2	.49513	73.7	.94512	15.0	53.88 56.94
.984	.82341	83.6	.60383	34.1	.49522	73.7	.94516	15.0	53.91 57.01
0.985	0.82391	83.5	0.60355	34.0	0.49530	73.8	0.94520	15.0	53.94 57.08
.986	.82441	83.5	.60327	33.9	.49539	73.8	.94524	15.0	53.97 57.15
.987	.82491	83.4	.60299	33.8	.49547	73.9	.94528	15.0	54.00 57.22
.988	.82541	83.4	.60271	33.7	.49556	73.9	.94532	15.0	54.03 57.29
.989	.82591	83.3	.60243	33.6	.49564	74.0	.94536	15.0	54.06 57.36
0.990	0.82641	83.3	0.60215	33.5	0.49573	74.0	0.94540	15.0	54.09 57.43
.991	.82691	83.2	.60187	33.4	.49581	74.1	.94544	15.0	54.12 57.50
.992	.82741	83.2	.60159	33.3	.49590	74.1	.94548	15.0	54.15 57.57
.993	.82791	83.1	.60131	33.2	.49598	74.2	.94552	15.0	54.18 57.64
.994	.82841	83.1	.60103	33.1	.49607	74.2	.94556	15.0	54.21 57.71
.995	.82891	83.0	.60075	33.0	.49615	74.3	.94560	15.0	54.24 57.78
0.996	0.82941	83.0	0.60047	32.9	0.49624	74.3	0.94564	15.0	54.27 57.85
.997	.82991	82.9	.60019	32.8	.49632	74.4	.94568	15.0	54.30 57.92
.998	.83041	82.9	.60000	32.7	.49641	74.4	.94572	15.0	54.33 57.99
.999	.83091	82.8	.60000	32.6	.49649	74.5	.94576	15.0	54.36 58.06
1.000	0.83141	82.8	0.60000	32.5	0.49658	74.5	0.94580	15.0	54.39 58.13

ARCS

Circular Functions.

u	$\sin u$	$\sin' u$	$\cos u$	$\cos' u$	$\log \sin u$	$\sin' u$	$\log \cos u$	$\cos' u$	u
0.550	0.52360	85.1	0.85252	52.3	9.71831	70.8	9.03071	26.6	31 30 45.64
.551	.52381	85.2	.85230	52.4	.71853	70.7	.03044	26.7	31 34 11.91
.552	.52403	85.1	.85198	52.5	.71876	70.5	.03017	26.7	31 37 38.17
.553	.52424	85.1	.85165	52.5	.71899	70.4	.02991	26.8	31 41 04.44
.554	.52446	85.0	.85133	52.6	.71923	70.2	.02964	26.9	31 44 30.70
0.555	0.52464	85.0	0.85100	52.7	9.72170	70.0	9.02937	26.0	31 47 56.97
.556	.52479	84.9	.85077	52.8	.72191	69.9	.02910	27.0	31 51 23.23
.557	.52494	84.9	.85054	52.9	.72216	69.7	.02883	27.0	31 54 49.50
.558	.52509	84.8	.85032	52.9	.72240	69.6	.02856	27.1	31 58 15.76
.559	.52524	84.8	.85009	53.0	.72265	69.4	.02829	27.2	32 01 42.03
0.560	0.52540	84.7	0.84976	53.1	9.72515	69.3	9.02801	27.2	32 05 08.29
.561	.52555	84.7	.84952	53.2	.72539	69.1	.02774	27.3	32 08 34.56
.562	.52569	84.6	.84929	53.3	.72563	69.0	.02747	27.3	32 12 00.82
.563	.52583	84.6	.84905	53.4	.72587	68.8	.02720	27.4	32 15 27.09
.564	.52597	84.5	.84882	53.5	.72611	68.7	.02693	27.5	32 18 53.35
0.565	0.52612	84.5	0.84850	53.5	9.72860	68.5	9.02666	27.5	32 22 19.62
.566	.52626	84.4	.84825	53.6	.72884	68.4	.02639	27.6	32 25 45.88
.567	.52640	84.4	.84802	53.7	.72908	68.2	.02612	27.7	32 29 12.15
.568	.52654	84.3	.84778	53.8	.72932	68.1	.02585	27.7	32 32 38.41
.569	.52668	84.2	.84754	53.9	.72956	67.9	.02558	27.8	32 36 04.67
0.570	0.52683	84.2	0.84722	54.0	9.73210	67.8	9.02531	27.8	32 39 30.94
.571	.52697	84.1	.84697	54.0	.73234	67.6	.02504	27.9	32 42 57.20
.572	.52711	84.1	.84673	54.1	.73258	67.5	.02477	28.0	32 46 23.47
.573	.52725	84.0	.84649	54.2	.73282	67.3	.02450	28.0	32 49 49.73
.574	.52739	84.0	.84625	54.3	.73306	67.2	.02423	28.1	32 53 16.00
0.575	0.52754	84.0	0.84593	54.4	9.73517	67.0	9.02396	28.1	32 56 42.26
.576	.52768	83.9	.84568	54.5	.73541	66.9	.02369	28.2	32 60 08.53
.577	.52782	83.8	.84544	54.6	.73565	66.7	.02342	28.3	32 63 34.79
.578	.52796	83.8	.84520	54.6	.73589	66.6	.02315	28.3	32 67 01.06
.579	.52810	83.7	.84496	54.7	.73613	66.4	.02288	28.4	32 70 27.32
0.580	0.52825	83.6	0.84464	54.8	9.73880	66.3	9.02261	28.5	32 73 53.59
.581	.52839	83.6	.84439	54.9	.73899	66.2	.02234	28.5	32 77 19.85
.582	.52853	83.5	.84415	55.0	.73923	66.0	.02207	28.6	32 80 46.12
.583	.52867	83.5	.84391	55.1	.73947	65.9	.02180	28.6	32 84 12.38
.584	.52881	83.4	.84367	55.1	.73971	65.7	.02153	28.7	32 87 38.65
0.585	0.52896	83.4	0.84335	55.2	9.74210	65.6	9.02126	28.8	32 91 04.91
.586	.52910	83.3	.84310	55.3	.74235	65.4	.02099	28.8	32 94 31.18
.587	.52924	83.3	.84286	55.4	.74259	65.3	.02072	28.9	32 97 57.44
.588	.52938	83.2	.84262	55.5	.74283	65.1	.02045	29.0	33 01 23.71
.589	.52952	83.1	.84238	55.6	.74307	65.0	.02018	29.0	33 04 49.97
0.590	0.52967	83.0	0.84206	55.6	9.74536	64.9	9.01991	29.1	33 08 16.24
.591	.52981	83.0	.84181	55.7	.74560	64.7	.01964	29.1	33 11 42.50
.592	.52995	82.9	.84157	55.8	.74584	64.6	.01937	29.2	33 15 08.77
.593	.53009	82.9	.84133	55.9	.74608	64.4	.01910	29.3	33 18 35.03
.594	.53023	82.9	.84109	56.0	.74632	64.3	.01883	29.3	33 22 01.29
0.595	0.53038	82.8	0.84077	56.1	9.74858	64.2	9.01856	29.4	33 25 27.56
.596	.53052	82.8	.84052	56.1	.74882	64.0	.01829	29.5	33 28 53.82
.597	.53066	82.7	.84028	56.2	.74906	63.9	.01802	29.5	33 32 20.09
.598	.53080	82.6	.84004	56.3	.74930	63.8	.01775	29.6	33 35 46.35
.599	.53094	82.6	.83980	56.4	.74954	63.6	.01748	29.6	33 39 12.62
0.600	0.53109	82.5	0.83948	56.5	9.75177	63.5	9.01721	29.7	33 42 38.88
u	$-\sin u$	$\sin' u$	$\cos u$	$\cos' u$	$\log \sin u$	$\sin' u$	$\log \cos u$	$\cos' u$	u

Circular Functions.

x	$\sin x$	$\cos x$	$\tan x$	$\cot x$	$\sec x$	$\csc x$	$\log \sin x$	$\log \cos x$	$\log \tan x$	$\log \cot x$	$\log \sec x$	$\log \csc x$
0.000	0.00000	1.00000	0.00000	∞	1.00000	∞	-1.30103	0.00000	-1.30103	0.00000	-1.30103	∞
0.001	0.00099	0.99999	0.00099	1.00000	1.00001	1.00000	-1.30103	-0.00001	-1.30103	0.00000	-1.30103	1.00000
0.002	0.00196	0.99983	0.00196	0.99983	1.00004	0.99983	-1.30103	-0.00004	-1.30103	0.00004	-1.30103	0.99983
0.003	0.00294	0.99966	0.00294	0.99966	1.00009	0.99966	-1.30103	-0.00009	-1.30103	0.00009	-1.30103	0.99966
0.004	0.00391	0.99948	0.00391	0.99948	1.00014	0.99948	-1.30103	-0.00014	-1.30103	0.00014	-1.30103	0.99948
0.005	0.00488	0.99930	0.00488	0.99930	1.00019	0.99930	-1.30103	-0.00019	-1.30103	0.00019	-1.30103	0.99930
0.006	0.00585	0.99911	0.00585	0.99911	1.00024	0.99911	-1.30103	-0.00024	-1.30103	0.00024	-1.30103	0.99911
0.007	0.00682	0.99892	0.00682	0.99892	1.00029	0.99892	-1.30103	-0.00029	-1.30103	0.00029	-1.30103	0.99892
0.008	0.00779	0.99873	0.00779	0.99873	1.00034	0.99873	-1.30103	-0.00034	-1.30103	0.00034	-1.30103	0.99873
0.009	0.00876	0.99854	0.00876	0.99854	1.00039	0.99854	-1.30103	-0.00039	-1.30103	0.00039	-1.30103	0.99854
0.010	0.00973	0.99835	0.00973	0.99835	1.00044	0.99835	-1.30103	-0.00044	-1.30103	0.00044	-1.30103	0.99835
0.011	0.01070	0.99816	0.01070	0.99816	1.00049	0.99816	-1.30103	-0.00049	-1.30103	0.00049	-1.30103	0.99816
0.012	0.01167	0.99797	0.01167	0.99797	1.00054	0.99797	-1.30103	-0.00054	-1.30103	0.00054	-1.30103	0.99797
0.013	0.01264	0.99778	0.01264	0.99778	1.00059	0.99778	-1.30103	-0.00059	-1.30103	0.00059	-1.30103	0.99778
0.014	0.01361	0.99759	0.01361	0.99759	1.00064	0.99759	-1.30103	-0.00064	-1.30103	0.00064	-1.30103	0.99759
0.015	0.01458	0.99740	0.01458	0.99740	1.00069	0.99740	-1.30103	-0.00069	-1.30103	0.00069	-1.30103	0.99740
0.016	0.01555	0.99721	0.01555	0.99721	1.00074	0.99721	-1.30103	-0.00074	-1.30103	0.00074	-1.30103	0.99721
0.017	0.01652	0.99702	0.01652	0.99702	1.00079	0.99702	-1.30103	-0.00079	-1.30103	0.00079	-1.30103	0.99702
0.018	0.01749	0.99683	0.01749	0.99683	1.00084	0.99683	-1.30103	-0.00084	-1.30103	0.00084	-1.30103	0.99683
0.019	0.01846	0.99664	0.01846	0.99664	1.00089	0.99664	-1.30103	-0.00089	-1.30103	0.00089	-1.30103	0.99664
0.020	0.01943	0.99645	0.01943	0.99645	1.00094	0.99645	-1.30103	-0.00094	-1.30103	0.00094	-1.30103	0.99645
0.021	0.02040	0.99626	0.02040	0.99626	1.00099	0.99626	-1.30103	-0.00099	-1.30103	0.00099	-1.30103	0.99626
0.022	0.02137	0.99607	0.02137	0.99607	1.00104	0.99607	-1.30103	-0.00104	-1.30103	0.00104	-1.30103	0.99607
0.023	0.02234	0.99588	0.02234	0.99588	1.00109	0.99588	-1.30103	-0.00109	-1.30103	0.00109	-1.30103	0.99588
0.024	0.02331	0.99569	0.02331	0.99569	1.00114	0.99569	-1.30103	-0.00114	-1.30103	0.00114	-1.30103	0.99569
0.025	0.02428	0.99550	0.02428	0.99550	1.00119	0.99550	-1.30103	-0.00119	-1.30103	0.00119	-1.30103	0.99550
0.026	0.02525	0.99531	0.02525	0.99531	1.00124	0.99531	-1.30103	-0.00124	-1.30103	0.00124	-1.30103	0.99531
0.027	0.02622	0.99512	0.02622	0.99512	1.00129	0.99512	-1.30103	-0.00129	-1.30103	0.00129	-1.30103	0.99512
0.028	0.02719	0.99493	0.02719	0.99493	1.00134	0.99493	-1.30103	-0.00134	-1.30103	0.00134	-1.30103	0.99493
0.029	0.02816	0.99474	0.02816	0.99474	1.00139	0.99474	-1.30103	-0.00139	-1.30103	0.00139	-1.30103	0.99474
0.030	0.02913	0.99455	0.02913	0.99455	1.00144	0.99455	-1.30103	-0.00144	-1.30103	0.00144	-1.30103	0.99455
0.031	0.03010	0.99436	0.03010	0.99436	1.00149	0.99436	-1.30103	-0.00149	-1.30103	0.00149	-1.30103	0.99436
0.032	0.03107	0.99417	0.03107	0.99417	1.00154	0.99417	-1.30103	-0.00154	-1.30103	0.00154	-1.30103	0.99417
0.033	0.03204	0.99398	0.03204	0.99398	1.00159	0.99398	-1.30103	-0.00159	-1.30103	0.00159	-1.30103	0.99398
0.034	0.03301	0.99379	0.03301	0.99379	1.00164	0.99379	-1.30103	-0.00164	-1.30103	0.00164	-1.30103	0.99379
0.035	0.03398	0.99360	0.03398	0.99360	1.00169	0.99360	-1.30103	-0.00169	-1.30103	0.00169	-1.30103	0.99360
0.036	0.03495	0.99341	0.03495	0.99341	1.00174	0.99341	-1.30103	-0.00174	-1.30103	0.00174	-1.30103	0.99341
0.037	0.03592	0.99322	0.03592	0.99322	1.00179	0.99322	-1.30103	-0.00179	-1.30103	0.00179	-1.30103	0.99322
0.038	0.03689	0.99303	0.03689	0.99303	1.00184	0.99303	-1.30103	-0.00184	-1.30103	0.00184	-1.30103	0.99303
0.039	0.03786	0.99284	0.03786	0.99284	1.00189	0.99284	-1.30103	-0.00189	-1.30103	0.00189	-1.30103	0.99284
0.040	0.03883	0.99265	0.03883	0.99265	1.00194	0.99265	-1.30103	-0.00194	-1.30103	0.00194	-1.30103	0.99265
0.041	0.03980	0.99246	0.03980	0.99246	1.00199	0.99246	-1.30103	-0.00199	-1.30103	0.00199	-1.30103	0.99246
0.042	0.04077	0.99227	0.04077	0.99227	1.00204	0.99227	-1.30103	-0.00204	-1.30103	0.00204	-1.30103	0.99227
0.043	0.04174	0.99208	0.04174	0.99208	1.00209	0.99208	-1.30103	-0.00209	-1.30103	0.00209	-1.30103	0.99208
0.044	0.04271	0.99189	0.04271	0.99189	1.00214	0.99189	-1.30103	-0.00214	-1.30103	0.00214	-1.30103	0.99189
0.045	0.04368	0.99170	0.04368	0.99170	1.00219	0.99170	-1.30103	-0.00219	-1.30103	0.00219	-1.30103	0.99170
0.046	0.04465	0.99151	0.04465	0.99151	1.00224	0.99151	-1.30103	-0.00224	-1.30103	0.00224	-1.30103	0.99151
0.047	0.04562	0.99132	0.04562	0.99132	1.00229	0.99132	-1.30103	-0.00229	-1.30103	0.00229	-1.30103	0.99132
0.048	0.04659	0.99113	0.04659	0.99113	1.00234	0.99113	-1.30103	-0.00234	-1.30103	0.00234	-1.30103	0.99113
0.049	0.04756	0.99094	0.04756	0.99094	1.00239	0.99094	-1.30103	-0.00239	-1.30103	0.00239	-1.30103	0.99094
0.050	0.04853	0.99075	0.04853	0.99075	1.00244	0.99075	-1.30103	-0.00244	-1.30103	0.00244	-1.30103	0.99075
0.051	0.04950	0.99056	0.04950	0.99056	1.00249	0.99056	-1.30103	-0.00249	-1.30103	0.00249	-1.30103	0.99056
0.052	0.05047	0.99037	0.05047	0.99037	1.00254	0.99037	-1.30103	-0.00254	-1.30103	0.00254	-1.30103	0.99037
0.053	0.05144	0.99018	0.05144	0.99018	1.00259	0.99018	-1.30103	-0.00259	-1.30103	0.00259	-1.30103	0.99018
0.054	0.05241	0.98999	0.05241	0.98999	1.00264	0.98999	-1.30103	-0.00264	-1.30103	0.00264	-1.30103	0.98999
0.055	0.05338	0.98980	0.05338	0.98980	1.00269	0.98980	-1.30103	-0.00269	-1.30103	0.00269	-1.30103	0.98980
0.056	0.05435	0.98961	0.05435	0.98961	1.00274	0.98961	-1.30103	-0.00274	-1.30103	0.00274	-1.30103	0.98961
0.057	0.05532	0.98942	0.05532	0.98942	1.00279	0.98942	-1.30103	-0.00279	-1.30103	0.00279	-1.30103	0.98942
0.058	0.05629	0.98923	0.05629	0.98923	1.00284	0.98923	-1.30103	-0.00284	-1.30103	0.00284	-1.30103	0.98923
0.059	0.05726	0.98904	0.05726	0.98904	1.00289	0.98904	-1.30103	-0.00289	-1.30103	0.00289	-1.30103	0.98904
0.060	0.05823	0.98885	0.05823	0.98885	1.00294	0.98885	-1.30103	-0.00294	-1.30103	0.00294	-1.30103	0.98885
0.061	0.05920	0.98866	0.05920	0.98866	1.00299	0.98866	-1.30103	-0.00299	-1.30103	0.00299	-1.30103	0.98866
0.062	0.06017	0.98847	0.06017	0.98847	1.00304	0.98847	-1.30103	-0.00304	-1.30103	0.00304	-1.30103	0.98847
0.063	0.06114	0.98828	0.06114	0.98828	1.00309	0.98828	-1.30103	-0.00309	-1.30103	0.00309	-1.30103	0.98828
0.064	0.06211	0.98809	0.06211	0.98809	1.00314	0.98809	-1.30103	-0.00314	-1.30103	0.00314	-1.30103	0.98809
0.065	0.06308	0.98790	0.06308	0.98790	1.00319	0.98790	-1.30103	-0.00319	-1.30103	0.00319	-1.30103	0.98790
0.066	0.06405	0.98771	0.06405	0.98771	1.00324	0.98771	-1.30103	-0.00324	-1.30103	0.00324	-1.30103	0.98771
0.067	0.06502	0.98752	0.06502	0.98752	1.00329	0.98752	-1.30103	-0.00329	-1.30103	0.00329	-1.30103	0.98752
0.068	0.06599	0.98733	0.06599	0.98733	1.00334	0.98733	-1.30103	-0.00334	-1.30103	0.00334	-1.30103	0.98733
0.069	0.06696	0.98714	0.06696	0.98714	1.00339	0.98714	-1.30103	-0.00339	-1.30103	0.00339	-1.30103	0.98714
0.070	0.06793	0.98695	0.06793	0.98695	1.00344	0.98695	-1.30103	-0.00344	-1.30103	0.00344	-1.30103	0.98695
0.071	0.06890	0.98676	0.06890	0.98676	1.00349	0.98676	-1.30103	-0.00349	-1.30103	0.00349	-1.30103	0.98676
0.072	0.06987	0.98657	0.06987	0.98657	1.00354	0.98657	-1.30103	-0.00354	-1.30103	0.00354	-1.30103	0.98657
0.073	0.07084	0.98638	0.07084	0.98638	1.00359	0.98638	-1.30103	-0.00359	-1.30103	0.00359	-1.30103	0.98638
0.074	0.07181	0.98619	0.07181	0.98619	1.00364	0.98619	-1.30103	-0.00364	-1.30103	0.00364	-1.30103	0.98619
0.075	0.07278	0.98600	0.07278	0.98600	1.00369	0.98600	-1.30103	-0.00369	-1.30103	0.00369	-1.30103	0.98600
0.076	0.07375	0.98581	0.07375	0.98581	1.00374	0.98581	-1.30103					

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\sec u$	$\csc u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	$\log \sec u$	$\log \csc u$
0.000	0.00000	1.00000	0.00000	∞	1.00000	∞	0.00000	0.00000	0.00000	∞	0.00000	∞
0.001	0.0009999	0.9999999	0.0010000	999.99999	1.0000001	999.99999	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.002	0.0019994	0.9998000	0.0020000	499.99999	1.0000004	499.99999	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.003	0.0029979	0.9994000	0.0030000	333.33333	1.0000009	333.33333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.004	0.0039954	0.9988000	0.0040000	250.00000	1.0000016	250.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.005	0.0049929	0.9979999	0.0050000	200.00000	1.0000025	200.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.006	0.0059904	0.9969999	0.0060000	166.66667	1.0000036	166.66667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.007	0.0069879	0.9959999	0.0070000	142.85714	1.0000049	142.85714	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.008	0.0079854	0.9949999	0.0080000	125.00000	1.0000064	125.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.009	0.0089829	0.9939999	0.0090000	111.11111	1.0000081	111.11111	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.010	0.0099804	0.9929999	0.0100000	100.00000	1.0000100	100.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.011	0.0109779	0.9919999	0.0110000	90.90909	1.0000121	90.90909	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.012	0.0119754	0.9909999	0.0120000	83.33333	1.0000144	83.33333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.013	0.0129729	0.9899999	0.0130000	76.92308	1.0000169	76.92308	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.014	0.0139704	0.9889999	0.0140000	71.42857	1.0000196	71.42857	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.015	0.0149679	0.9879999	0.0150000	66.66667	1.0000225	66.66667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.016	0.0159654	0.9869999	0.0160000	62.50000	1.0000256	62.50000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.017	0.0169629	0.9859999	0.0170000	59.09091	1.0000289	59.09091	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.018	0.0179604	0.9849999	0.0180000	56.25000	1.0000324	56.25000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.019	0.0189579	0.9839999	0.0190000	53.84615	1.0000361	53.84615	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.020	0.0199554	0.9829999	0.0200000	51.66667	1.0000400	51.66667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.021	0.0209529	0.9819999	0.0210000	49.75000	1.0000441	49.75000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.022	0.0219504	0.9809999	0.0220000	48.00000	1.0000484	48.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.023	0.0229479	0.9799999	0.0230000	46.42857	1.0000529	46.42857	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.024	0.0239454	0.9789999	0.0240000	45.00000	1.0000576	45.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.025	0.0249429	0.9779999	0.0250000	43.75000	1.0000625	43.75000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.026	0.0259404	0.9769999	0.0260000	42.66667	1.0000676	42.66667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.027	0.0269379	0.9759999	0.0270000	41.66667	1.0000729	41.66667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.028	0.0279354	0.9749999	0.0280000	40.75000	1.0000784	40.75000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.029	0.0289329	0.9739999	0.0290000	40.00000	1.0000841	40.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.030	0.0299304	0.9729999	0.0300000	39.33333	1.0000899	39.33333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.031	0.0309279	0.9719999	0.0310000	38.75000	1.0000959	38.75000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.032	0.0319254	0.9709999	0.0320000	38.25000	1.0001020	38.25000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.033	0.0329229	0.9699999	0.0330000	37.83333	1.0001083	37.83333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.034	0.0339204	0.9689999	0.0340000	37.50000	1.0001148	37.50000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.035	0.0349179	0.9679999	0.0350000	37.22222	1.0001214	37.22222	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.036	0.0359154	0.9669999	0.0360000	37.00000	1.0001282	37.00000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.037	0.0369129	0.9659999	0.0370000	36.80000	1.0001351	36.80000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.038	0.0379104	0.9649999	0.0380000	36.61111	1.0001422	36.61111	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.039	0.0389079	0.9639999	0.0390000	36.48000	1.0001494	36.48000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.040	0.0399054	0.9629999	0.0400000	36.40000	1.0001568	36.40000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.041	0.0409029	0.9619999	0.0410000	36.36364	1.0001643	36.36364	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.042	0.0418954	0.9609999	0.0420000	36.33333	1.0001720	36.33333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.043	0.0428929	0.9599999	0.0430000	36.30769	1.0001798	36.30769	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.044	0.0438904	0.9589999	0.0440000	36.28571	1.0001877	36.28571	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.045	0.0448879	0.9579999	0.0450000	36.26667	1.0001958	36.26667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.046	0.0458854	0.9569999	0.0460000	36.25000	1.0002040	36.25000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.047	0.0468829	0.9559999	0.0470000	36.23438	1.0002123	36.23438	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.048	0.0478804	0.9549999	0.0480000	36.22000	1.0002208	36.22000	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.049	0.0488779	0.9539999	0.0490000	36.20667	1.0002294	36.20667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.050	0.0498754	0.9529999	0.0500000	36.19444	1.0002382	36.19444	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.051	0.0508729	0.9519999	0.0510000	36.18333	1.0002471	36.18333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.052	0.0518704	0.9509999	0.0520000	36.17333	1.0002562	36.17333	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.053	0.0528679	0.9499999	0.0530000	36.16429	1.0002654	36.16429	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.054	0.0538654	0.9489999	0.0540000	36.15625	1.0002748	36.15625	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.055	0.0548629	0.9479999	0.0550000	36.14909	1.0002843	36.14909	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.056	0.0558604	0.9469999	0.0560000	36.14258	1.0002940	36.14258	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.057	0.0568579	0.9459999	0.0570000	36.13667	1.0003038	36.13667	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.058	0.0578554	0.9449999	0.0580000	36.13133	1.0003138	36.13133	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.059	0.0588529	0.9439999	0.0590000	36.12652	1.0003239	36.12652	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.060	0.0598504	0.9429999	0.0600000	36.12222	1.0003342	36.12222	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.061	0.0608479	0.9419999	0.0610000	36.11842	1.0003446	36.11842	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.062	0.0618454	0.9409999	0.0620000	36.11500	1.0003552	36.11500	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.063	0.0628429	0.9399999	0.0630000	36.11196	1.0003659	36.11196	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.064	0.0638404	0.9389999	0.0640000	36.10926	1.0003768	36.10926	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.065	0.0648379	0.9379999	0.0650000	36.10688	1.0003878	36.10688	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.066	0.0658354	0.9369999	0.0660000	36.10480	1.0003990	36.10480	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.067	0.0668329	0.9359999	0.0670000	36.10292	1.0004103	36.10292	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.068	0.0678304	0.9349999	0.0680000	36.10125	1.0004218	36.10125	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.069	0.0688279	0.9339999	0.0690000	36.09978	1.0004334	36.09978	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.070	0.0698254	0.9329999	0.0700000	36.09850	1.0004452	36.09850	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.071	0.0708229	0.9319999	0.0710000	36.09739	1.0004571	36.09739	0.0000000	0.0000000	0.0000000	∞	0.0000000	∞
0.072	0.0718204	0.9309999	0.0720000	36.09644	1.0004692	36.09644	0.0000000	0.0000000	0.0000000	∞	0	

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\cot \alpha$	$\sec \alpha$	$\csc \alpha$
0.700	0.64279	0.76604	0.84386	1.18534	1.25982	1.18534
0.701	0.64368	0.76594	0.84400	1.18518	1.25967	1.18518
0.702	0.64457	0.76583	0.84414	1.18502	1.25952	1.18502
0.703	0.64546	0.76572	0.84428	1.18486	1.25937	1.18486
0.704	0.64635	0.76561	0.84442	1.18470	1.25922	1.18470
0.705	0.64724	0.76550	0.84456	1.18454	1.25907	1.18454
0.706	0.64813	0.76539	0.84470	1.18438	1.25892	1.18438
0.707	0.64902	0.76528	0.84484	1.18422	1.25877	1.18422
0.708	0.64991	0.76517	0.84498	1.18406	1.25862	1.18406
0.709	0.65080	0.76506	0.84512	1.18390	1.25847	1.18390
0.710	0.65169	0.76495	0.84526	1.18374	1.25832	1.18374
0.711	0.65258	0.76484	0.84540	1.18358	1.25817	1.18358
0.712	0.65347	0.76473	0.84554	1.18342	1.25802	1.18342
0.713	0.65436	0.76462	0.84568	1.18326	1.25787	1.18326
0.714	0.65525	0.76451	0.84582	1.18310	1.25772	1.18310
0.715	0.65614	0.76440	0.84596	1.18294	1.25757	1.18294
0.716	0.65703	0.76429	0.84610	1.18278	1.25742	1.18278
0.717	0.65792	0.76418	0.84624	1.18262	1.25727	1.18262
0.718	0.65881	0.76407	0.84638	1.18246	1.25712	1.18246
0.719	0.65970	0.76396	0.84652	1.18230	1.25697	1.18230
0.720	0.66059	0.76385	0.84666	1.18214	1.25682	1.18214
0.721	0.66148	0.76374	0.84680	1.18198	1.25667	1.18198
0.722	0.66237	0.76363	0.84694	1.18182	1.25652	1.18182
0.723	0.66326	0.76352	0.84708	1.18166	1.25637	1.18166
0.724	0.66415	0.76341	0.84722	1.18150	1.25622	1.18150
0.725	0.66504	0.76330	0.84736	1.18134	1.25607	1.18134
0.726	0.66593	0.76319	0.84750	1.18118	1.25592	1.18118
0.727	0.66682	0.76308	0.84764	1.18102	1.25577	1.18102
0.728	0.66771	0.76297	0.84778	1.18086	1.25562	1.18086
0.729	0.66860	0.76286	0.84792	1.18070	1.25547	1.18070
0.730	0.66949	0.76275	0.84806	1.18054	1.25532	1.18054
0.731	0.67038	0.76264	0.84820	1.18038	1.25517	1.18038
0.732	0.67127	0.76253	0.84834	1.18022	1.25502	1.18022
0.733	0.67216	0.76242	0.84848	1.18006	1.25487	1.18006
0.734	0.67305	0.76231	0.84862	1.17990	1.25472	1.17990
0.735	0.67394	0.76220	0.84876	1.17974	1.25457	1.17974
0.736	0.67483	0.76209	0.84890	1.17958	1.25442	1.17958
0.737	0.67572	0.76198	0.84904	1.17942	1.25427	1.17942
0.738	0.67661	0.76187	0.84918	1.17926	1.25412	1.17926
0.739	0.67750	0.76176	0.84932	1.17910	1.25397	1.17910
0.740	0.67839	0.76165	0.84946	1.17894	1.25382	1.17894
0.741	0.67928	0.76154	0.84960	1.17878	1.25367	1.17878
0.742	0.68017	0.76143	0.84974	1.17862	1.25352	1.17862
0.743	0.68106	0.76132	0.84988	1.17846	1.25337	1.17846
0.744	0.68195	0.76121	0.85002	1.17830	1.25322	1.17830
0.745	0.68284	0.76110	0.85016	1.17814	1.25307	1.17814
0.746	0.68373	0.76099	0.85030	1.17798	1.25292	1.17798
0.747	0.68462	0.76088	0.85044	1.17782	1.25277	1.17782
0.748	0.68551	0.76077	0.85058	1.17766	1.25262	1.17766
0.749	0.68640	0.76066	0.85072	1.17750	1.25247	1.17750
0.750	0.68729	0.76055	0.85086	1.17734	1.25232	1.17734
0	0	1	0	0	1	1

SMITHSONIAN TABLES

Circular Functions.

u	$\sin u$	$= F'$	$\cos u$	$= F'$	$\log \sin u$	$= F'$	$\log \cos u$	$= F'$	u
0.750	0.68164	73.2	0.73169	68.2	9.83355	45.6	9.86433	42.0	43 15 29.53
.751	.68237	73.1	.73101	68.2	.83402	45.5	.86392	42.0	43 16 50.12
.752	.68310	73.0	.73032	68.3	.83448	45.4	.86337	42.0	43 18 10.71
.753	.68383	72.9	.72964	68.4	.83495	45.3	.86281	41.9	43 19 31.30
.754	.68456	72.8	.72895	68.5	.83541	45.2	.86226	41.9	43 20 51.89
0.755	0.68529	72.8	0.72827	68.5	9.83587	45.2	9.86220	41.9	43 22 12.48
.756	.68602	72.8	.72759	68.6	.83633	45.1	.86168	41.9	43 23 33.07
.757	.68674	72.7	.72690	68.7	.83679	45.0	.86112	41.9	43 24 53.66
.758	.68747	72.6	.72621	68.7	.83725	45.0	.86056	41.8	43 26 14.25
.759	.68820	72.6	.72552	68.8	.83771	45.0	.86000	41.8	43 27 34.84
0.760	0.68892	72.5	0.72484	68.9	9.83817	45.7	9.86024	41.3	43 28 55.43
.761	.68965	72.4	.72415	69.0	.83863	45.6	.85968	41.4	43 30 16.02
.762	.69037	72.3	.72346	69.0	.83908	45.5	.85911	41.4	43 31 36.61
.763	.69109	72.3	.72277	69.1	.83954	45.4	.85855	41.3	43 32 57.20
.764	.69182	72.2	.72207	69.2	.83999	45.3	.85800	41.3	43 34 17.79
0.765	0.69254	72.1	0.72138	69.3	9.84044	45.2	9.85817	41.7	43 35 38.38
.766	.69327	72.1	.72069	69.3	.84089	45.1	.85775	41.8	43 36 58.97
.767	.69398	72.0	.72000	69.4	.84135	45.1	.85729	41.9	43 38 19.56
.768	.69470	71.9	.71930	69.5	.84180	45.0	.85681	41.9	43 39 40.15
.769	.69542	71.9	.71861	69.5	.84225	44.9	.85634	41.9	43 40 60.74
0.770	0.69614	71.8	0.71792	69.6	9.84269	44.8	9.85667	42.1	43 41 81.33
.771	.69687	71.7	.71723	69.7	.84314	44.7	.85615	42.2	43 43 01.92
.772	.69758	71.7	.71653	69.8	.84359	44.6	.85563	42.3	43 44 22.51
.773	.69829	71.6	.71584	69.8	.84403	44.5	.85510	42.4	43 45 43.10
.774	.69900	71.5	.71512	69.9	.84448	44.4	.85458	42.5	43 46 63.69
0.775	0.69972	71.4	0.71442	70.0	9.84492	44.3	9.85305	42.5	43 47 84.28
.776	.70043	71.4	.71372	70.0	.84536	44.3	.85353	42.6	43 49 04.87
.777	.70114	71.3	.71302	70.1	.84581	44.2	.85300	42.7	43 50 25.46
.778	.70185	71.2	.71231	70.2	.84625	44.1	.85247	42.8	43 51 46.05
.779	.70257	71.2	.71162	70.3	.84669	44.0	.85192	42.9	43 52 66.64
0.780	0.70328	71.1	0.71091	70.3	9.84713	43.9	9.85182	43.0	43 53 87.23
.781	.70399	71.0	.71021	70.4	.84757	43.8	.85129	43.0	43 55 07.82
.782	.70470	71.0	.70951	70.5	.84800	43.7	.85076	43.1	43 56 28.41
.783	.70541	70.9	.70880	70.5	.84844	43.6	.85022	43.2	43 57 49.00
.784	.70612	70.8	.70809	70.6	.84888	43.6	.84969	43.3	43 59 09.59
0.785	0.70683	70.7	0.70739	70.7	9.84931	43.5	9.84966	43.4	43 60 30.18
.786	.70753	70.7	.70668	70.8	.84975	43.4	.84922	43.5	43 61 50.77
.787	.70824	70.6	.70597	70.8	.85018	43.3	.84879	43.6	43 63 11.36
.788	.70894	70.5	.70525	70.9	.85061	43.2	.84835	43.7	43 64 31.95
.789	.70965	70.5	.70456	71.0	.85104	43.1	.84792	43.7	43 65 52.54
0.790	0.71035	70.4	0.70385	71.0	9.85147	43.0	9.84748	43.8	43 67 13.13
.791	.71105	70.3	.70313	71.1	.85190	42.9	.84704	43.9	43 68 33.72
.792	.71176	70.2	.70242	71.2	.85233	42.8	.84660	44.0	43 69 54.31
.793	.71246	70.2	.70171	71.2	.85276	42.8	.84616	44.1	43 71 14.90
.794	.71316	70.1	.70100	71.3	.85319	42.7	.84572	44.2	43 72 35.49
0.795	0.71386	70.0	0.70028	71.4	9.85362	42.6	9.84527	44.3	43 73 56.08
.796	.71456	70.0	.69957	71.5	.85404	42.5	.84483	44.4	43 75 16.67
.797	.71526	69.9	.69885	71.5	.85447	42.4	.84439	44.5	43 76 37.26
.798	.71595	69.8	.69814	71.6	.85489	42.3	.84394	44.6	43 77 57.85
.799	.71666	69.7	.69742	71.7	.85531	42.3	.84350	44.6	43 79 18.44
0.800	0.71736	69.7	0.69671	71.7	9.85573	42.2	9.84305	44.7	43 80 39.03
u	$-\sin u$	$= F'$	$\cosh u$	$= F'$	$\log \sinh u$	$= F'$	$\log \cosh u$	$= F'$	u

Circular Functions

n	sin n	= F'	cos n	= F'	log sin n	= F'	log cos n	= F'	n
0.801	0.71735	617	0.69671	717	9.35573	457	9.81105	417	45 39 11.361
0.801	71785	616	69620	718	85580	454	81150	418	35 53 38.111
0.802	71835	615	69567	719	85628	450	81195	419	15 57 51.47
0.803	71884	615	69515	720	85670	446	81240	420	10 00 30.60
0.804	71934	614	69461	721	85714	442	81285	421	10 03 59.00
0.805	0.71983	613	0.69407	722	0.85758	438	0.81330	422	36 07 53.11
0.805	71983	612	69354	723	85805	437	81375	423	30 30 40.43
0.807	72032	612	69300	724	85852	436	81420	424	30 14 13.70
0.808	72081	611	69246	725	85894	435	81465	425	30 17 41.00
0.809	72130	610	69192	726	85939	434	81510	426	30 30 08.31
0.810	0.72179	609	0.69139	727	0.85983	433	0.81555	427	30 31 34.10
0.811	72179	608	69085	728	86031	432	81600	428	30 38 00.70
0.812	72228	608	69030	729	86077	431	81645	429	30 43 27.02
0.813	72277	607	68975	730	86125	431	81690	430	30 51 53.30
0.814	72326	607	68920	731	86170	430	81735	431	30 59 19.55
0.815	0.72374	606	0.68865	732	0.86217	429	0.81780	432	30 45 45.81
0.816	72423	605	68811	733	86265	429	81825	433	30 38 00.70
0.817	72472	605	68756	734	86311	428	81870	434	30 47 38.35
0.818	72520	604	68701	735	86359	427	81915	435	30 53 01.04
0.819	72569	604	68646	736	86406	426	81960	436	30 53 30.84
0.820	0.72618	603	0.68591	737	0.86453	425	0.82005	437	30 58 37.14
0.821	72618	603	68536	738	86501	425	82050	438	30 58 37.14
0.822	72667	603	68481	739	86548	424	82095	439	30 57 04.02
0.823	72716	602	68426	740	86595	423	82140	440	30 59 18.01
0.824	72765	602	68371	741	86642	422	82185	441	30 52 42.30
0.825	0.72813	601	0.68316	742	0.86689	421	0.82230	442	30 48 48.17
0.826	72813	601	68261	743	86737	421	82275	443	30 51 11.73
0.827	72862	601	68206	744	86784	420	82320	444	30 51 00.93
0.828	72911	600	68151	745	86831	419	82365	445	30 50 27.36
0.829	72960	600	68096	746	86878	418	82410	446	30 50 53.51
0.830	0.73008	599	0.68041	747	0.86925	417	0.82455	447	30 51 09.70
0.831	73008	599	68014	748	86973	417	82500	448	30 49 40.05
0.832	73057	599	67959	749	87020	416	82545	449	30 49 16.32
0.833	73106	598	67904	750	87067	415	82590	450	30 48 38.38
0.834	73155	598	67849	751	87114	414	82635	451	30 47 57.01
0.835	0.73203	597	0.67794	752	0.87161	413	0.82680	452	30 47 11.11
0.836	73203	597	67740	753	87209	413	82725	453	30 47 32.88
0.837	73252	597	67685	754	87256	412	82770	454	30 47 00.60
0.838	73301	596	67630	755	87303	411	82815	455	30 46 28.32
0.839	73350	596	67575	756	87350	410	82860	456	30 45 56.04
0.840	0.73398	595	0.67520	757	0.87397	409	0.82905	457	30 45 23.76
0.841	73398	595	67465	758	87444	409	82950	458	30 44 51.48
0.842	73447	595	67410	759	87491	408	82995	459	30 44 19.20
0.843	73496	594	67355	760	87538	407	83040	460	30 43 46.92
0.844	73545	594	67300	761	87585	406	83085	461	30 43 14.64
0.845	0.73593	593	0.67245	762	0.87632	405	0.83130	462	30 42 42.36
0.846	73593	593	67190	763	87679	405	83175	463	30 42 10.08
0.847	73642	593	67135	764	87726	404	83220	464	30 41 37.80
0.848	73691	592	67080	765	87773	403	83265	465	30 41 05.52
0.849	73740	592	67025	766	87820	402	83310	466	30 40 33.24
0.850	0.73788	591	0.66970	767	0.87867	401	0.83355	467	30 40 00.96
0.851	73788	591	66915	768	87914	401	83400	468	30 39 28.68
0.852	73837	591	66860	769	87961	400	83445	469	30 38 56.40
0.853	73886	590	66805	770	88008	399	83490	470	30 38 24.12
0.854	73935	590	66750	771	88055	398	83535	471	30 37 51.84
0.855	0.73983	589	0.66695	772	0.88102	397	0.83580	472	30 37 19.56
0.856	73983	589	66640	773	88149	397	83625	473	30 36 47.28
0.857	74032	589	66585	774	88196	396	83670	474	30 36 15.00
0.858	74081	588	66530	775	88243	395	83715	475	30 35 42.72
0.859	74130	588	66475	776	88290	394	83760	476	30 35 10.44
0.860	0.74179	587	0.66420	777	0.88337	393	0.83805	477	30 34 38.16
0.861	74179	587	66365	778	88384	393	83850	478	30 34 05.88
0.862	74228	587	66310	779	88431	392	83895	479	30 33 33.60
0.863	74277	586	66255	780	88478	391	83940	480	30 33 01.32
0.864	74326	586	66200	781	88525	390	83985	481	30 32 29.04
0.865	0.74374	585	0.66145	782	0.88572	389	0.84030	482	30 31 56.76
0.866	74374	585	66090	783	88619	389	84075	483	30 31 24.48
0.867	74423	585	66035	784	88666	388	84120	484	30 30 52.20
0.868	74472	584	65980	785	88713	387	84165	485	30 30 19.92
0.869	74520	584	65925	786	88760	386	84210	486	30 29 47.64
0.870	0.74569	583	0.65870	787	0.88807	385	0.84255	487	30 29 15.36
0.871	74569	583	65815	788	88854	385	84300	488	30 28 43.08
0.872	74618	583	65760	789	88901	384	84345	489	30 28 10.80
0.873	74667	582	65705	790	88948	383	84390	490	30 27 38.52
0.874	74716	582	65650	791	88995	382	84435	491	30 27 06.24
0.875	0.74765	581	0.65595	792	0.89042	381	0.84480	492	30 26 33.96
0.876	74765	581	65540	793	89089	381	84525	493	30 26 01.68
0.877	74814	581	65485	794	89136	380	84570	494	30 25 29.40
0.878	74863	580	65430	795	89183	379	84615	495	30 24 57.12
0.879	74912	580	65375	796	89230	378	84660	496	30 24 24.84
0.880	0.74961	579	0.65320	797	0.89277	377	0.84705	497	30 23 52.56
0.881	74961	579	65265	798	89324	377	84750	498	30 23 20.28
0.882	75010	579	65210	799	89371	376	84795	499	30 22 48.00
0.883	75059	578	65155	800	89418	375	84840	500	30 22 15.72
0.884	75108	578	65100	801	89465	374	84885	501	30 21 43.44
0.885	0.75157	577	0.65045	802	0.89512	373	0.84930	502	30 21 11.16
0.886	75157	577	64990	803	89559	373	84975	503	30 20 38.88
0.887	75206	577	64935	804	89606	372	85020	504	30 20 06.60
0.888	75255	576	64880	805	89653	371	85065	505	30 19 34.32
0.889	75304	576	64825	806	89700	370	85110	506	30 19 02.04
0.890	0.75353	575	0.64770	807	0.89747	369	0.85155	507	30 18 29.76
0.891	75353	575	64715	808	89794	369	85200	508	30 17 57.48
0.892	75402	575	64660	809	89841	368	85245	509	30 17 25.20
0.893	75451	574	64605	810	89888	367	85290	510	30 16 52.92
0.894	75500	574	64550	811	89935	366	85335	511	30 16 20.64
0.895	0.75549	573	0.64495	812	0.89982	365	0.85380	512	30 15 48.36
0.896	75549	573	64440	813	90029	365	85425	513	30 15 16.08
0.897	75598	573	64385	814	90076	364	85470	514	30 14 43.80
0.898	75647	572	64330	815	90123	363	85515	515	30 14 11.52
0.899	75696	572	64275	816	90170	362	85560	516	30 13 39.24
0.900	0.75745	571	0.64220	817	0.90217	361	0.85605	517	30 13 06.96
0.901	75745	571	64165	818	90264	361	85650	518	30 12 34.68
0.902	75794	571	64110	819	90311	360	85695	519	30 12 02.40
0.903	75843	570	64055	820	90358	359	85740	520	30 11 30.12
0.904	75892	570	64000	821	90405	358	85785	521	30 10 57.84
0.905	0.75941	569	0.63945	822	0.90452	357	0.85830	522	30 10 25.56
0.906	75941	569	63890	823	90499	357	85875	523	30 09 53.28
0.907	75990	569	63835	824	90546	356	85920	524	30 09 21.00
0.908	76039	568	63780	825	90593	355	85965	525	30 08 48.72
0.909	76088	568	63725	826	90640	354	86010	526	30 08 16.44
0.910	0.76137	567	0.63670	827	0.90687	353	0.86055	527	30 07 44.16
0.911	76137	567	63615	828	90734	353	86100	528	30 07 11.88
0.912	76186	567	63560	829	90781	352	86145	529	30 06 39.60
0.913	76235	566	63505	830	90828	351	86190	530	30 06 07.32
0.914	76284	566	63450	831	90875	350	86235	531	30 05 35.04
0.915	0.76333	565	0.63395	832	0.90922	349	0.86280	532	30 05 02.76
0.916	76333	565	63340	833	90969	349	86325	533	30 04 30.48
0.917	76382	565	63285	834	91016	348	86370	534	30 03 58.20
0.918	76431	564	63230	835	91063	347	86415	535	

Circular Functions.

x	$\sin x$	$= F'$	$\cos x$	$= F'$	$\log \sin x$	$= F'$	$\log \cos x$	$= F'$	x
0.890	0.78128	66.0	0.61968	75.1	0.87380	38.2	0.80933	40.1	48 42 05.00
0.891	0.78140	65.0	0.61943	75.2	0.87408	38.1	0.80911	40.5	48 43 31.35
0.892	0.78150	65.8	0.61918	75.3	0.87436	38.0	0.80884	40.9	48 45 37.61
0.893	0.78160	65.8	0.61893	75.3	0.87461	37.9	0.80856	40.7	48 47 23.88
0.894	0.78169	65.7	0.61867	75.4	0.87482	37.8	0.80825	40.8	48 49 50.14
0.895	0.78177	65.6	0.61842	75.5	0.87500	37.8	0.80798	40.9	48 50 16.41
0.896	0.78184	65.5	0.61816	75.5	0.87518	37.7	0.80765	40.0	48 52 42.67
0.897	0.78190	65.5	0.61791	75.6	0.87535	37.6	0.80735	40.1	48 55 37.94
0.898	0.78195	65.4	0.61765	75.7	0.87551	37.5	0.80705	40.2	48 59 15.20
0.899	0.78199	65.3	0.61739	75.7	0.87560	37.5	0.80674	40.3	49 01 41.47
0.900	0.78203	65.2	0.61713	75.8	0.87568	37.4	0.80641	40.4	49 04 17.73
0.901	0.78206	65.2	0.61687	75.8	0.87575	37.3	0.80607	40.5	49 06 54.00
0.902	0.78208	65.1	0.61662	75.9	0.87581	37.2	0.80572	40.6	49 09 30.26
0.903	0.78210	65.0	0.61636	75.9	0.87586	37.2	0.80536	40.7	49 12 06.52
0.904	0.78211	64.9	0.61610	76.0	0.87590	37.1	0.80500	40.8	49 14 42.79
0.905	0.78212	64.9	0.61584	76.1	0.87593	37.0	0.80463	40.9	49 17 19.06
0.906	0.78213	64.8	0.61558	76.2	0.87595	36.9	0.80425	41.0	49 19 55.33
0.907	0.78214	64.7	0.61532	76.2	0.87596	36.9	0.80387	41.1	49 22 31.60
0.908	0.78215	64.6	0.61506	76.3	0.87597	36.8	0.80348	41.2	49 25 07.87
0.909	0.78215	64.6	0.61480	76.4	0.87597	36.7	0.80309	41.3	49 27 44.14
0.910	0.78215	64.5	0.61454	76.4	0.87597	36.6	0.80269	41.4	49 30 20.41
0.911	0.78215	64.4	0.61428	76.5	0.87596	36.5	0.80228	41.5	49 32 56.68
0.912	0.78215	64.3	0.61402	76.5	0.87595	36.4	0.80187	41.6	49 35 32.95
0.913	0.78215	64.3	0.61376	76.6	0.87594	36.3	0.80145	41.7	49 38 09.22
0.914	0.78215	64.2	0.61350	76.7	0.87593	36.2	0.80103	41.8	49 40 45.49
0.915	0.78215	64.1	0.61324	76.8	0.87592	36.1	0.80061	41.9	49 43 21.76
0.916	0.78215	64.0	0.61298	76.9	0.87591	36.0	0.80019	42.0	49 45 58.03
0.917	0.78215	63.9	0.61272	77.0	0.87590	35.9	0.79977	42.1	49 48 34.30
0.918	0.78215	63.8	0.61246	77.1	0.87589	35.8	0.79935	42.2	49 51 10.57
0.919	0.78215	63.7	0.61220	77.2	0.87588	35.7	0.79893	42.3	49 53 46.84
0.920	0.78215	63.6	0.61194	77.3	0.87587	35.6	0.79851	42.4	49 56 23.11
0.921	0.78215	63.5	0.61168	77.4	0.87586	35.5	0.79809	42.5	49 58 59.38
0.922	0.78215	63.4	0.61142	77.5	0.87585	35.4	0.79767	42.6	49 61 35.65
0.923	0.78215	63.3	0.61116	77.6	0.87584	35.3	0.79725	42.7	49 64 11.92
0.924	0.78215	63.2	0.61090	77.7	0.87583	35.2	0.79683	42.8	49 66 48.19
0.925	0.78215	63.1	0.61064	77.8	0.87582	35.1	0.79641	42.9	49 69 24.46
0.926	0.78215	63.0	0.61038	77.9	0.87581	35.0	0.79599	43.0	49 72 00.73
0.927	0.78215	62.9	0.61012	78.0	0.87580	34.9	0.79557	43.1	49 74 37.00
0.928	0.78215	62.8	0.60986	78.1	0.87579	34.8	0.79515	43.2	49 77 13.27
0.929	0.78215	62.7	0.60960	78.2	0.87578	34.7	0.79473	43.3	49 79 49.54
0.930	0.78215	62.6	0.60934	78.3	0.87577	34.6	0.79431	43.4	49 82 25.81
0.931	0.78215	62.5	0.60908	78.4	0.87576	34.5	0.79389	43.5	49 85 02.08
0.932	0.78215	62.4	0.60882	78.5	0.87575	34.4	0.79347	43.6	49 87 38.35
0.933	0.78215	62.3	0.60856	78.6	0.87574	34.3	0.79305	43.7	49 90 14.62
0.934	0.78215	62.2	0.60830	78.7	0.87573	34.2	0.79263	43.8	49 92 50.89
0.935	0.78215	62.1	0.60804	78.8	0.87572	34.1	0.79221	43.9	49 95 27.16
0.936	0.78215	62.0	0.60778	78.9	0.87571	34.0	0.79179	44.0	49 98 03.43
0.937	0.78215	61.9	0.60752	79.0	0.87570	33.9	0.79137	44.1	49 10 39.70
0.938	0.78215	61.8	0.60726	79.1	0.87569	33.8	0.79095	44.2	49 13 15.97
0.939	0.78215	61.7	0.60700	79.2	0.87568	33.7	0.79053	44.3	49 15 52.24
0.940	0.78215	61.6	0.60674	79.3	0.87567	33.6	0.79011	44.4	49 18 28.51
0.941	0.78215	61.5	0.60648	79.4	0.87566	33.5	0.78969	44.5	49 21 04.78
0.942	0.78215	61.4	0.60622	79.5	0.87565	33.4	0.78927	44.6	49 23 41.05
0.943	0.78215	61.3	0.60596	79.6	0.87564	33.3	0.78885	44.7	49 26 17.32
0.944	0.78215	61.2	0.60570	79.7	0.87563	33.2	0.78843	44.8	49 28 53.59
0.945	0.78215	61.1	0.60544	79.8	0.87562	33.1	0.78801	44.9	49 31 29.86
0.946	0.78215	61.0	0.60518	79.9	0.87561	33.0	0.78759	45.0	49 34 06.13
0.947	0.78215	60.9	0.60492	80.0	0.87560	32.9	0.78717	45.1	49 36 42.40
0.948	0.78215	60.8	0.60466	80.1	0.87559	32.8	0.78675	45.2	49 39 18.67
0.949	0.78215	60.7	0.60440	80.2	0.87558	32.7	0.78633	45.3	49 41 54.94
0.950	0.78215	60.6	0.60414	80.3	0.87557	32.6	0.78591	45.4	49 44 31.21
0.951	0.78215	60.5	0.60388	80.4	0.87556	32.5	0.78549	45.5	49 47 07.48
0.952	0.78215	60.4	0.60362	80.5	0.87555	32.4	0.78507	45.6	49 49 43.75
0.953	0.78215	60.3	0.60336	80.6	0.87554	32.3	0.78465	45.7	49 52 19.02
0.954	0.78215	60.2	0.60310	80.7	0.87553	32.2	0.78423	45.8	49 54 55.29
0.955	0.78215	60.1	0.60284	80.8	0.87552	32.1	0.78381	45.9	49 57 31.56
0.956	0.78215	60.0	0.60258	80.9	0.87551	32.0	0.78339	46.0	49 60 07.83
0.957	0.78215	59.9	0.60232	81.0	0.87550	31.9	0.78297	46.1	49 62 44.10
0.958	0.78215	59.8	0.60206	81.1	0.87549	31.8	0.78255	46.2	49 65 20.37
0.959	0.78215	59.7	0.60180	81.2	0.87548	31.7	0.78213	46.3	49 67 56.64
0.960	0.78215	59.6	0.60154	81.3	0.87547	31.6	0.78171	46.4	49 70 32.91
0.961	0.78215	59.5	0.60128	81.4	0.87546	31.5	0.78129	46.5	49 73 09.18
0.962	0.78215	59.4	0.60102	81.5	0.87545	31.4	0.78087	46.6	49 75 45.45
0.963	0.78215	59.3	0.60076	81.6	0.87544	31.3	0.78045	46.7	49 78 21.72
0.964	0.78215	59.2	0.60050	81.7	0.87543	31.2	0.78003	46.8	49 80 57.99
0.965	0.78215	59.1	0.60024	81.8	0.87542	31.1	0.77961	46.9	49 83 34.26
0.966	0.78215	59.0	0.59998	81.9	0.87541	31.0	0.77919	47.0	49 86 10.53
0.967	0.78215	58.9	0.59972	82.0	0.87540	30.9	0.77877	47.1	49 88 46.80
0.968	0.78215	58.8	0.59946	82.1	0.87539	30.8	0.77835	47.2	49 91 23.07
0.969	0.78215	58.7	0.59920	82.2	0.87538	30.7	0.77793	47.3	49 93 59.34
0.970	0.78215	58.6	0.59894	82.3	0.87537	30.6	0.77751	47.4	49 96 35.61
0.971	0.78215	58.5	0.59868	82.4	0.87536	30.5	0.77709	47.5	49 99 11.88
0.972	0.78215	58.4	0.59842	82.5	0.87535	30.4	0.77667	47.6	50 01 48.15
0.973	0.78215	58.3	0.59816	82.6	0.87534	30.3	0.77625	47.7	50 04 24.42
0.974	0.78215	58.2	0.59790	82.7	0.87533	30.2	0.77583	47.8	50 07 00.69
0.975	0.78215	58.1	0.59764	82.8	0.87532	30.1	0.77541	47.9	50 09 36.96
0.976	0.78215	58.0	0.59738	82.9	0.87531	30.0	0.77499	48.0	50 12 13.23
0.977	0.78215	57.9	0.59712	83.0	0.87530	29.9	0.77457	48.1	50 14 49.50
0.978	0.78215	57.8	0.59686	83.1	0.87529	29.8	0.77415	48.2	50 17 25.77
0.979	0.78215	57.7	0.59660	83.2	0.87528	29.7	0.77373	48.3	50 20 02.04
0.980	0.78215	57.6	0.59634	83.3	0.87527	29.6	0.77331	48.4	50 22 38.31
0.981	0.78215	57.5	0.59608	83.4	0.87526	29.5	0.77289	48.5	50 25 14.58
0.982	0.78215	57.4	0.59582	83.5	0.87525	29.4	0.77247	48.6	50 27 50.85
0.983	0.78215	57.3	0.59556	83.6	0.87524	29.3	0.77205	48.7	50 30 27.12
0.984	0.78215	57.2	0.59530	83.7	0.87523	29.2	0.77163	48.8	50 33 03.39
0.985	0.78215	57.1	0.59504	83.8	0.87522	29.1	0.77121	48.9	50 35 39.66
0.986	0.78215	57.0	0.59478	83.9	0.87521	29.0	0.77079	49.0	50 38 15.93
0.987	0.78215	56.9	0.59452	84.0	0.87520	28.9	0.77037	49.1	50 40 52.20
0.988	0.78215	56.8	0.59426	84.1	0.87519	28.8	0.76995	49.2	50 43 28.47
0.989	0.78215	56.7	0.59400	84.2	0.87518	28.7	0.76953	49.3	50 46 04.74
0.990	0.78215	56.6	0.59374	84.3	0.87517	28.6	0.76911	49.4	50 48 41.01
0.991	0.78215	56.5	0.59348	84.4	0.87516	28.5	0.76869	49.5	50 51 17.28
0.992	0.78215	56.4	0.59322	84.5	0.87515	28.4	0.76827	49.6	50 53 53.55
0.993	0.78215	56.3	0.59296	84.6	0.87514	28.3	0.76785	49.7	50 56 29.82
0.994	0.78215	56.2	0.59270	84.7	0.87513	28.2	0.76743	49.8	50 59 06.09
0.995	0.78215	56.1	0.59244	84.8	0.87512	28.1	0.76701	49.9	51 01 42.36
0.996	0.78215								

Circular Functions.

θ	$\sin \theta$	$\approx F_1'$	$\cos \theta$	$\approx F_2'$	$\log \sin \theta$	$\approx F_3'$	$\log \cos \theta$	$\approx F_4'$	θ
0.000	0.78313	61.2	0.62164	28.1	9.81291	34.5	9.79151	54.7	51.31 58.71
0.001	.78395	62.1	.62083	28.1	.81139	34.4	.79067	54.8	51.32 58.70
0.002	.78477	63.0	.62002	28.5	.81013	34.3	.78941	54.9	51.33 58.69
0.003	.78559	64.0	.61920	28.5	.80907	34.3	.78815	55.1	51.34 58.68
0.004	.78641	64.8	.61837	28.6	.80832	34.2	.78689	55.2	51.35 58.67
0.005	0.78723	65.8	0.61759	28.6	0.80756	34.1	0.78612	55.3	51.36 58.66
0.006	.78805	66.7	.61680	28.7	.80680	34.0	.78536	55.4	51.37 58.65
0.007	.78887	67.6	.61601	28.8	.80603	34.0	.78460	55.5	51.38 58.64
0.008	.78969	68.5	.61522	28.8	.80528	33.9	.78384	55.6	51.39 58.63
0.009	.79051	69.5	.61443	28.9	.80452	33.8	.78308	55.8	51.40 58.62
0.010	0.79133	70.4	0.61365	29.0	0.80375	33.8	0.78232	55.9	51.41 58.61
0.011	.79215	71.3	.61286	29.0	.80300	33.7	.78156	56.0	51.42 58.60
0.012	.79297	72.2	.61207	29.1	.80224	33.6	.78080	56.1	51.43 58.59
0.013	.79379	73.1	.61128	29.1	.80148	33.6	.78004	56.2	51.44 58.58
0.014	.79461	74.0	.61049	29.2	.80072	33.5	.77928	56.3	51.45 58.57
0.015	0.79543	75.0	0.60970	29.3	0.80001	33.4	0.77852	56.4	51.46 58.56
0.016	.79625	76.0	.60890	29.3	.80027	33.3	.77776	56.5	51.47 58.55
0.017	.79707	76.8	.60811	29.4	.80052	33.3	.77700	56.6	51.48 58.54
0.018	.79789	77.7	.60731	29.4	.80003	33.2	.77624	56.7	51.49 58.53
0.019	.79871	78.7	.60652	29.5	.80030	33.1	.77548	56.8	51.50 58.52
0.020	0.79953	79.6	0.60573	29.6	0.99970	33.1	0.77472	56.9	51.51 58.51
0.021	.79935	80.5	.60494	29.6	.99993	33.0	.77396	57.0	51.52 58.50
0.022	.79917	81.4	.60415	29.7	.99917	32.9	.77320	57.1	51.53 58.49
0.023	.79999	82.3	.60336	29.7	.99942	32.9	.77244	57.2	51.54 58.48
0.024	.80081	83.2	.60257	29.8	.99966	32.8	.77168	57.3	51.55 58.47
0.025	0.80163	84.2	0.60178	29.9	0.99991	32.7	0.77092	57.4	51.56 58.46
0.026	.80245	85.1	.60099	29.9	.99915	32.7	.77016	57.5	51.57 58.45
0.027	.80327	86.0	.60020	30.0	.99940	32.6	.76940	57.6	51.58 58.44
0.028	.80409	86.9	.59941	30.0	.99964	32.6	.76864	57.7	51.59 58.43
0.029	.80491	87.8	.59862	30.1	.99989	32.5	.76788	57.8	51.60 58.42
0.030	0.80573	88.7	0.59783	30.2	0.99913	32.4	0.76712	57.9	51.61 58.41
0.031	.80655	89.6	.59704	30.2	.99938	32.4	.76636	58.0	51.62 58.40
0.032	.80737	90.5	.59625	30.3	.99962	32.3	.76560	58.1	51.63 58.39
0.033	.80819	91.4	.59546	30.3	.99987	32.3	.76484	58.2	51.64 58.38
0.034	.80901	92.3	.59467	30.4	.99911	32.2	.76408	58.3	51.65 58.37
0.035	0.80983	93.2	0.59388	30.5	0.99936	32.1	0.76332	58.4	51.66 58.36
0.036	.81065	94.1	.59309	30.5	.99960	32.0	.76256	58.5	51.67 58.35
0.037	.81147	95.0	.59230	30.6	.99985	31.9	.76180	58.6	51.68 58.34
0.038	.81229	95.9	.59151	30.6	.99909	31.8	.76104	58.7	51.69 58.33
0.039	.81311	96.8	.59072	30.7	.99934	31.8	.76028	58.8	51.70 58.32
0.040	0.81393	97.7	0.58993	30.8	.99958	31.7	.75952	58.9	51.71 58.31
0.041	.81475	98.6	.58914	30.8	.99983	31.6	.75876	59.0	51.72 58.30
0.042	.81557	99.5	.58835	30.9	.99907	31.6	.75800	59.1	51.73 58.29
0.043	.81639	100.4	.58756	31.0	.99932	31.5	.75724	59.2	51.74 58.28
0.044	.81721	101.3	.58677	31.1	.99956	31.5	.75648	59.3	51.75 58.27
0.045	0.81803	102.2	0.58598	31.2	0.99981	31.4	0.75572	59.4	51.76 58.26
0.046	.81885	103.1	.58519	31.2	.99905	31.3	.75496	59.5	51.77 58.25
0.047	.81967	104.0	.58440	31.3	.99930	31.3	.75420	59.6	51.78 58.24
0.048	.82049	104.9	.58361	31.3	.99954	31.2	.75344	59.7	51.79 58.23
0.049	.82131	105.8	.58282	31.4	.99979	31.2	.75268	59.8	51.80 58.22
0.050	0.82213	106.7	0.58203	31.5	0.99903	31.1	0.75192	59.9	51.81 58.21
0.051	.82295	107.6	.58124	31.5	.99928	31.0	.75116	60.0	51.82 58.20
0.052	.82377	108.5	.58045	31.6	.99952	31.0	.75040	60.1	51.83 58.19
0.053	.82459	109.4	.57966	31.6	.99977	30.9	.74964	60.2	51.84 58.18
0.054	.82541	110.3	.57887	31.7	.99901	30.9	.74888	60.3	51.85 58.17
0.055	.82623	111.2	.57808	31.7	.99926	30.8	.74812	60.4	51.86 58.16
0.056	.82705	112.1	.57729	31.8	.99950	30.8	.74736	60.5	51.87 58.15
0.057	.82787	113.0	.57650	31.8	.99975	30.7	.74660	60.6	51.88 58.14
0.058	.82869	113.9	.57571	31.9	.99999	30.7	.74584	60.7	51.89 58.13
0.059	.82951	114.8	.57492	31.9	.99923	30.6	.74508	60.8	51.90 58.12
0.060	0.83033	115.7	0.57413	32.0	.99948	30.6	.74432	60.9	51.91 58.11
0.061	.83115	116.6	.57334	32.0	.99972	30.5	.74356	61.0	51.92 58.10
0.062	.83197	117.5	.57255	32.1	.99997	30.5	.74280	61.1	51.93 58.09
0.063	.83279	118.4	.57176	32.1	.99921	30.4	.74204	61.2	51.94 58.08
0.064	.83361	119.3	.57097	32.2	.99946	30.4	.74128	61.3	51.95 58.07
0.065	.83443	120.2	.57018	32.2	.99970	30.3	.74052	61.4	51.96 58.06
0.066	.83525	121.1	.56939	32.3	.99995	30.3	.73976	61.5	51.97 58.05
0.067	.83607	122.0	.56860	32.3	.99919	30.2	.73900	61.6	51.98 58.04
0.068	.83689	122.9	.56781	32.4	.99944	30.2	.73824	61.7	51.99 58.03
0.069	.83771	123.8	.56702	32.4	.99968	30.1	.73748	61.8	52.00 58.02
0.070	0.83853	124.7	0.56623	32.5	0.99993	30.1	.73672	61.9	52.01 58.01
0.071	.83935	125.6	.56544	32.5	.99917	30.0	.73596	62.0	52.02 58.00
0.072	.84017	126.5	.56465	32.6	.99942	30.0	.73520	62.1	52.03 57.99
0.073	.84099	127.4	.56386	32.6	.99966	29.9	.73444	62.2	52.04 57.98
0.074	.84181	128.3	.56307	32.7	.99991	29.9	.73368	62.3	52.05 57.97
0.075	.84263	129.2	.56228	32.7	.99915	29.8	.73292	62.4	52.06 57.96
0.076	.84345	130.1	.56149	32.8	.99940	29.8	.73216	62.5	52.07 57.95
0.077	.84427	131.0	.56070	32.8	.99964	29.7	.73140	62.6	52.08 57.94
0.078	.84509	131.9	.55991	32.9	.99989	29.7	.73064	62.7	52.09 57.93
0.079	.84591	132.8	.55912	32.9	.99913	29.6	.72988	62.8	52.10 57.92
0.080	.84673	133.7	.55833	33.0	.99938	29.6	.72912	62.9	52.11 57.91
0.081	.84755	134.6	.55754	33.0	.99962	29.5	.72836	63.0	52.12 57.90
0.082	.84837	135.5	.55675	33.1	.99987	29.5	.72760	63.1	52.13 57.89
0.083	.84919	136.4	.55596	33.1	.99911	29.4	.72684	63.2	52.14 57.88
0.084	.85001	137.3	.55517	33.2	.99936	29.4	.72608	63.3	52.15 57.87
0.085	.85083	138.2	.55438	33.2	.99960	29.3	.72532	63.4	52.16 57.86
0.086	.85165	139.1	.55359	33.3	.99985	29.3	.72456	63.5	52.17 57.85
0.087	.85247	140.0	.55280	33.3	.99909	29.2	.72380	63.6	52.18 57.84
0.088	.85329	140.9	.55201	33.4	.99934	29.2	.72304	63.7	52.19 57.83
0.089	.85411	141.8	.55122	33.4	.99958	29.1	.72228	63.8	52.20 57.82
0.090	.85493	142.7	.55043	33.5	.99983	29.1	.72152	63.9	52.21 57.81
0.091	.85575	143.6	.54964	33.5	.99907	29.0	.72076	64.0	52.22 57.80
0.092	.85657	144.5	.54885	33.6	.99932	29.0	.72000	64.1	52.23 57.79
0.093	.85739	145.4	.54806	33.6	.99956	28.9	.71924	64.2	52.24 57.78
0.094	.85821	146.3	.54727	33.7	.99981	28.9	.71848	64.3	52.25 57.77
0.095	.85903	147.2	.54648	33.7	.99905	28.8	.71772	64.4	52.26 57.76
0.096	.85985	148.1	.54569	33.8	.99930	28.8	.71696	64.5	52.27 57.75
0.097	.86067	149.0	.54490	33.8	.99954	28.7	.71620	64.6	52.28 57.74
0.098	.86149	149.9	.54411	33.9	.99979	28.7	.71544	64.7	52.29 57.73
0.099	.86231	150.8	.54332	33.9	.99903	28.6	.71468	64.8	52.30 57.72
0.100	.86313	151.7	.54253	34.0	.99928	28.6	.71392	64.9	52.31 57.71

SMITHSONIAN TABLES

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u
0.050	0.81342	58.2	0.58168	81.3	0.91031	31.1	0.76169	60.7	54 55 51.37
0.051	0.81400	58.1	0.58087	81.4	0.91054	31.0	0.76108	60.9	54 55 17.83
0.052	0.81458	58.0	0.58006	81.5	0.91077	30.9	0.76047	61.0	54 54 44.10
0.053	0.81516	57.9	0.57924	81.6	0.91100	30.8	0.75986	61.1	54 54 10.30
0.054	0.81574	57.8	0.57842	81.7	0.91123	30.7	0.75925	61.2	54 53 36.63
0.055	0.81631	57.7	0.57761	81.8	0.91146	30.6	0.75864	61.3	54 53 02.80
0.056	0.81689	57.6	0.57679	81.9	0.91169	30.5	0.75803	61.4	54 52 29.15
0.057	0.81747	57.5	0.57597	82.0	0.91192	30.4	0.75742	61.5	54 51 55.42
0.058	0.81804	57.4	0.57515	82.1	0.91215	30.3	0.75681	61.6	54 51 21.68
0.059	0.81862	57.3	0.57434	82.2	0.91238	30.2	0.75620	61.7	54 50 47.95
0.060	0.81919	57.2	0.57352	82.3	0.91261	30.1	0.75559	61.8	54 50 14.21
0.061	0.81977	57.1	0.57270	82.4	0.91284	30.0	0.75498	61.9	54 49 40.48
0.062	0.82034	57.0	0.57188	82.5	0.91307	29.9	0.75437	62.0	54 49 06.74
0.063	0.82091	56.9	0.57106	82.6	0.91330	29.8	0.75376	62.1	54 48 33.01
0.064	0.82148	56.8	0.57024	82.7	0.91353	29.7	0.75315	62.2	54 48 00.27
0.065	0.82205	56.7	0.56942	82.8	0.91376	29.6	0.75254	62.3	54 47 26.54
0.066	0.82262	56.6	0.56860	82.9	0.91399	29.5	0.75193	62.4	54 46 52.80
0.067	0.82319	56.5	0.56777	83.0	0.91422	29.4	0.75132	62.5	54 46 19.07
0.068	0.82375	56.4	0.56695	83.1	0.91445	29.3	0.75071	62.6	54 45 45.33
0.069	0.82432	56.3	0.56612	83.2	0.91468	29.2	0.75010	62.7	54 45 11.60
0.070	0.82489	56.2	0.56530	83.3	0.91491	29.1	0.74949	62.8	54 44 37.86
0.071	0.82545	56.1	0.56447	83.4	0.91514	29.0	0.74888	62.9	54 44 04.13
0.072	0.82601	56.0	0.56365	83.5	0.91537	28.9	0.74827	63.0	54 43 30.39
0.073	0.82658	55.9	0.56282	83.6	0.91560	28.8	0.74766	63.1	54 42 56.66
0.074	0.82714	55.8	0.56200	83.7	0.91583	28.7	0.74705	63.2	54 42 22.92
0.075	0.82770	55.7	0.56117	83.8	0.91606	28.6	0.74644	63.3	54 41 49.19
0.076	0.82826	55.6	0.56034	83.9	0.91629	28.5	0.74583	63.4	54 41 25.45
0.077	0.82882	55.5	0.55951	84.0	0.91652	28.4	0.74522	63.5	54 40 51.72
0.078	0.82938	55.4	0.55868	84.1	0.91675	28.3	0.74461	63.6	54 40 27.98
0.079	0.82994	55.3	0.55785	84.2	0.91698	28.2	0.74400	63.7	54 40 04.25
0.080	0.83050	55.2	0.55702	84.3	0.91721	28.1	0.74339	63.8	54 39 40.51
0.081	0.83105	55.1	0.55619	84.4	0.91744	28.0	0.74278	63.9	54 39 16.77
0.082	0.83161	55.0	0.55536	84.5	0.91767	27.9	0.74217	64.0	54 38 53.04
0.083	0.83216	54.9	0.55453	84.6	0.91790	27.8	0.74156	64.1	54 38 29.30
0.084	0.83272	54.8	0.55370	84.7	0.91813	27.7	0.74095	64.2	54 38 05.57
0.085	0.83327	54.7	0.55287	84.8	0.91836	27.6	0.74034	64.3	54 37 41.83
0.086	0.83382	54.6	0.55204	84.9	0.91859	27.5	0.73973	64.4	54 37 18.10
0.087	0.83438	54.5	0.55121	85.0	0.91882	27.4	0.73912	64.5	54 36 54.36
0.088	0.83493	54.4	0.55038	85.1	0.91905	27.3	0.73851	64.6	54 36 30.63
0.089	0.83548	54.3	0.54955	85.2	0.91928	27.2	0.73790	64.7	54 36 06.89
0.090	0.83603	54.2	0.54872	85.3	0.91951	27.1	0.73729	64.8	54 35 43.16
0.091	0.83657	54.1	0.54789	85.4	0.91974	27.0	0.73668	64.9	54 35 19.42
0.092	0.83712	54.0	0.54706	85.5	0.91997	26.9	0.73607	65.0	54 34 55.68
0.093	0.83767	53.9	0.54623	85.6	0.92020	26.8	0.73546	65.1	54 34 31.95
0.094	0.83821	53.8	0.54540	85.7	0.92043	26.7	0.73485	65.2	54 34 08.21
0.095	0.83876	53.7	0.54457	85.8	0.92066	26.6	0.73424	65.3	54 33 44.47
0.096	0.83930	53.6	0.54374	85.9	0.92089	26.5	0.73363	65.4	54 33 20.74
0.097	0.83984	53.5	0.54291	86.0	0.92112	26.4	0.73302	65.5	54 32 57.00
0.098	0.84038	53.4	0.54208	86.1	0.92135	26.3	0.73241	65.6	54 32 33.26
0.099	0.84092	53.3	0.54125	86.2	0.92158	26.2	0.73180	65.7	54 32 09.52
1.000	0.84147	53.2	0.54042	86.3	0.92181	26.1	0.73119	65.8	54 31 45.78
1.000	0.84147	54.0	0.54030	86.1	0.92204	26.0	0.73058	65.9	54 31 22.04
u	$-\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
1.000	0.84147	54.0	0.54030	84.1	9.92504	27.0	9.73264	67.6	57 17 44.81
.001	.84121	53.9	.53940	84.2	.92532	27.8	.73195	67.8	57 21 11.07
.002	.84155	53.9	.53852	84.3	.92560	27.8	.73168	67.9	57 24 37.34
.003	.84190	53.8	.53778	84.4	.92587	27.7	.73060	68.1	57 28 03.60
.004	.84263	53.7	.53694	84.4	.92615	27.6	.72992	68.2	57 31 09.87
1.005	0.84416	53.6	0.53609	84.4	9.92643	27.6	9.73024	68.4	57 34 26.13
.006	.84470	53.5	.53524	84.5	.92672	27.5	.72855	68.5	57 38 22.40
.007	.84523	53.4	.53440	84.5	.92698	27.5	.72787	68.7	57 41 48.66
.008	.84577	53.4	.53355	84.6	.92725	27.4	.72718	68.8	57 45 14.92
.009	.84630	53.3	.53271	84.6	.92752	27.3	.72649	69.0	57 48 41.19
1.010	0.84783	53.2	0.53186	84.7	9.92780	27.3	9.72980	69.1	57 52 07.45
.011	.84795	53.1	.53101	84.7	.92807	27.2	.72511	69.3	57 55 33.72
.012	.84789	53.0	.53017	84.8	.92834	27.2	.72444	69.5	57 58 59.98
.013	.84812	52.9	.52932	84.8	.92861	27.1	.72374	69.6	58 02 26.25
.014	.84835	52.8	.52847	84.9	.92888	27.0	.72302	69.8	58 05 52.51
1.015	0.84988	52.8	0.52762	85.0	9.92915	27.0	9.72232	69.9	58 09 18.78
.016	.85001	52.7	.52777	85.0	.92942	26.9	.72162	70.1	58 12 45.04
.017	.85053	52.6	.52692	85.1	.92969	26.9	.72092	70.2	58 16 11.31
.018	.85106	52.5	.52607	85.1	.92996	26.8	.72022	70.4	58 19 37.57
.019	.85158	52.4	.52522	85.2	.93023	26.7	.71951	70.5	58 23 03.84
1.020	0.85311	52.3	0.52437	85.2	9.93049	26.7	9.71881	70.7	58 26 30.10
.021	.85363	52.3	.52351	85.3	.93076	26.6	.71810	70.9	58 29 56.37
.022	.85315	52.2	.52166	85.3	.93103	26.6	.71739	71.0	58 33 22.63
.023	.85367	52.1	.52081	85.4	.93130	26.5	.71668	71.2	58 36 48.90
.024	.85439	52.0	.51995	85.4	.93156	26.4	.71595	71.3	58 40 15.16
1.025	0.85592	51.9	0.51910	85.5	9.93182	26.4	9.71525	71.5	58 43 41.43
.026	.85624	51.8	.51824	85.5	.93208	26.3	.71453	71.7	58 47 07.69
.027	.85675	51.7	.51739	85.6	.93235	26.3	.71382	71.8	58 50 33.95
.028	.85697	51.7	.51653	85.6	.93261	26.2	.71310	72.0	58 54 00.22
.029	.85698	51.6	.51568	85.7	.93287	26.1	.71238	72.2	58 57 26.49
1.030	0.85770	51.5	0.51482	85.7	9.93313	26.1	9.71165	72.3	59 00 52.75
.031	.85781	51.4	.51396	85.8	.93339	26.0	.71093	72.5	59 04 19.02
.032	.85823	51.3	.51310	85.8	.93365	26.0	.71020	72.6	59 07 45.28
.033	.85884	51.2	.51224	85.9	.93391	25.9	.70948	72.8	59 11 11.54
.034	.85935	51.1	.51139	85.9	.93417	25.8	.70875	73.0	59 14 37.81
1.035	0.86085	51.1	0.51053	86.0	9.93443	25.8	9.70802	73.1	59 18 04.07
.036	.86137	51.0	.50967	86.0	.93469	25.7	.70729	73.3	59 21 30.34
.037	.86188	50.9	.50881	86.1	.93494	25.7	.70655	73.5	59 24 56.60
.038	.86139	50.8	.50794	86.1	.93520	25.6	.70582	73.6	59 28 22.87
.039	.86190	50.7	.50708	86.2	.93546	25.6	.70508	73.8	59 31 49.13
1.040	0.86340	50.6	0.50622	86.2	9.93571	25.5	9.70434	74.0	59 35 15.40
.041	.86391	50.5	.50536	86.3	.93597	25.4	.70360	74.2	59 38 41.66
.042	.86441	50.4	.50449	86.3	.93622	25.4	.70286	74.3	59 42 07.93
.043	.86492	50.4	.50363	86.4	.93647	25.3	.70211	74.5	59 45 34.19
.044	.86442	50.3	.50277	86.4	.93673	25.3	.70137	74.7	59 49 00.46
1.045	0.86592	50.2	0.50190	86.5	9.93698	25.2	9.70062	74.8	59 52 26.72
.046	.86543	50.1	.50104	86.5	.93723	25.1	.69987	75.0	59 55 52.99
.047	.86593	50.0	.50017	86.6	.93748	25.1	.69912	75.2	59 59 19.25
.048	.86643	49.9	.49930	86.6	.93773	25.0	.69837	75.4	60 02 45.52
.049	.86693	49.8	.49844	86.7	.93798	25.0	.69761	75.5	60 06 11.78
1.050	0.86794	49.8	0.49757	86.7	9.93823	24.9	9.69685	75.7	60 09 38.05
u	$-\sin u$	$= F_1'$	$\cosh u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$	$= F_4'$	u

SMITHSONIAN TABLES

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\sec \alpha$	$\csc \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	$\log \tan \alpha$	$\log \sec \alpha$	$\log \csc \alpha$	α
1.050	0.86712	0.49802	1.74125	2.00799	1.01082	0.93824	2.149	0.66085	75.7	60.09 38.05	
1.051	0.86742	0.49772	1.74270	2.00799	1.01082	0.93848	2.148	0.66100	75.9	60.13 04.31	
1.052	0.86772	0.49742	1.74415	2.00799	1.01082	0.93873	2.148	0.66115	76.1	60.16 30.58	
1.053	0.86802	0.49712	1.74560	2.00799	1.01082	0.93898	2.147	0.66130	76.2	60.19 56.81	
1.054	0.86832	0.49682	1.74705	2.00799	1.01082	0.93923	2.147	0.66145	76.4	60.23 23.11	
1.055	0.86862	0.49652	1.74850	2.00799	1.01082	0.93948	2.146	0.66160	76.6	60.26 49.37	
1.056	0.86892	0.49622	1.74995	2.00799	1.01082	0.93973	2.146	0.66175	76.8	60.30 15.61	
1.057	0.86922	0.49592	1.75140	2.00799	1.01082	0.93998	2.145	0.66190	77.0	60.33 41.90	
1.058	0.86952	0.49562	1.75285	2.00799	1.01082	0.94023	2.145	0.66205	77.1	60.37 08.17	
1.059	0.86982	0.49532	1.75430	2.00799	1.01082	0.94048	2.144	0.66220	77.3	60.40 34.43	
1.060	0.87012	0.49502	1.75575	2.00799	1.01082	0.94073	2.143	0.66235	77.5	60.44 00.69	
1.061	0.87042	0.49472	1.75720	2.00799	1.01082	0.94098	2.143	0.66250	77.7	60.47 26.95	
1.062	0.87072	0.49442	1.75865	2.00799	1.01082	0.94123	2.142	0.66265	77.9	60.50 53.22	
1.063	0.87102	0.49412	1.76010	2.00799	1.01082	0.94148	2.142	0.66280	78.0	60.54 19.49	
1.064	0.87132	0.49382	1.76155	2.00799	1.01082	0.94173	2.141	0.66295	78.2	60.57 45.75	
1.065	0.87162	0.49352	1.76300	2.00799	1.01082	0.94198	2.141	0.66310	78.4	61.01 12.02	
1.066	0.87192	0.49322	1.76445	2.00799	1.01082	0.94223	2.140	0.66325	78.6	61.04 38.28	
1.067	0.87222	0.49292	1.76590	2.00799	1.01082	0.94248	2.140	0.66340	78.8	61.08 04.55	
1.068	0.87252	0.49262	1.76735	2.00799	1.01082	0.94273	2.139	0.66355	79.0	61.11 30.81	
1.069	0.87282	0.49232	1.76880	2.00799	1.01082	0.94298	2.138	0.66370	79.2	61.14 57.08	
1.070	0.87312	0.49202	1.77025	2.00799	1.01082	0.94323	2.138	0.66385	79.4	61.18 23.34	
1.071	0.87342	0.49172	1.77170	2.00799	1.01082	0.94348	2.137	0.66400	79.6	61.21 49.61	
1.072	0.87372	0.49142	1.77315	2.00799	1.01082	0.94373	2.137	0.66415	79.8	61.25 15.87	
1.073	0.87402	0.49112	1.77460	2.00799	1.01082	0.94398	2.136	0.66430	80.0	61.28 42.14	
1.074	0.87432	0.49082	1.77605	2.00799	1.01082	0.94423	2.136	0.66445	80.1	61.32 08.40	
1.075	0.87462	0.49052	1.77750	2.00799	1.01082	0.94448	2.135	0.66460	80.3	61.35 34.67	
1.076	0.87492	0.49022	1.77895	2.00799	1.01082	0.94473	2.134	0.66475	80.5	61.39 00.93	
1.077	0.87522	0.48992	1.78040	2.00799	1.01082	0.94498	2.134	0.66490	80.7	61.42 27.20	
1.078	0.87552	0.48962	1.78185	2.00799	1.01082	0.94523	2.133	0.66505	80.9	61.45 53.46	
1.079	0.87582	0.48932	1.78330	2.00799	1.01082	0.94548	2.133	0.66520	81.1	61.49 19.73	
1.080	0.87612	0.48902	1.78475	2.00799	1.01082	0.94573	2.132	0.66535	81.3	61.52 45.99	
1.081	0.87642	0.48872	1.78620	2.00799	1.01082	0.94598	2.132	0.66550	81.5	61.56 12.25	
1.082	0.87672	0.48842	1.78765	2.00799	1.01082	0.94623	2.131	0.66565	81.7	61.59 38.52	
1.083	0.87702	0.48812	1.78910	2.00799	1.01082	0.94648	2.130	0.66580	81.9	61.63 04.79	
1.084	0.87732	0.48782	1.79055	2.00799	1.01082	0.94673	2.130	0.66595	82.1	61.66 31.05	
1.085	0.87762	0.48752	1.79200	2.00799	1.01082	0.94698	2.129	0.66610	82.3	61.69 57.31	
1.086	0.87792	0.48722	1.79345	2.00799	1.01082	0.94723	2.129	0.66625	82.5	61.73 23.58	
1.087	0.87822	0.48692	1.79490	2.00799	1.01082	0.94748	2.128	0.66640	82.7	61.76 49.84	
1.088	0.87852	0.48662	1.79635	2.00799	1.01082	0.94773	2.128	0.66655	82.9	61.80 16.11	
1.089	0.87882	0.48632	1.79780	2.00799	1.01082	0.94798	2.127	0.66670	83.1	61.83 42.37	
1.090	0.87912	0.48602	1.79925	2.00799	1.01082	0.94823	2.127	0.66685	83.3	61.87 18.64	
1.091	0.87942	0.48572	1.80070	2.00799	1.01082	0.94848	2.126	0.66700	83.5	61.90 44.91	
1.092	0.87972	0.48542	1.80215	2.00799	1.01082	0.94873	2.126	0.66715	83.7	61.94 21.17	
1.093	0.88002	0.48512	1.80360	2.00799	1.01082	0.94898	2.125	0.66730	83.9	61.97 47.44	
1.094	0.88032	0.48482	1.80505	2.00799	1.01082	0.94923	2.125	0.66745	84.1	62.01 23.70	
1.095	0.88062	0.48452	1.80650	2.00799	1.01082	0.94948	2.124	0.66760	84.3	62.04 49.97	
1.096	0.88092	0.48422	1.80795	2.00799	1.01082	0.94973	2.123	0.66775	84.5	62.08 26.23	
1.097	0.88122	0.48392	1.80940	2.00799	1.01082	0.94998	2.123	0.66790	84.7	62.11 52.50	
1.098	0.88152	0.48362	1.81085	2.00799	1.01082	0.95023	2.122	0.66805	84.9	62.15 28.76	
1.099	0.88182	0.48332	1.81230	2.00799	1.01082	0.95048	2.122	0.66820	85.1	62.19 05.02	
1.100	0.88212	0.48302	1.81375	2.00799	1.01082	0.95073	2.121	0.66835	85.3	62.22 31.29	
α	$-\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\sec \alpha$	$\csc \alpha$	$\log \sin \alpha$	$\log \cos \alpha$	$\log \tan \alpha$	$\log \sec \alpha$	$\log \csc \alpha$	α

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
1.107	0.89121	45.1	0.45960	86.1	9.94928	2.51	9.03967	85.3	61.01 31.29
1.108	0.89169	45.2	0.45901	86.2	9.95031	2.50	9.03981	85.5	61.04 37.55
1.109	0.89213	45.3	0.45842	86.3	9.95137	2.50	9.04000	85.8	61.08 43.82
1.110	0.89256	45.4	0.45782	86.4	9.95241	2.49	9.04019	86.0	61.14 50.08
1.111	0.89299	45.5	0.45723	86.5	9.95345	2.49	9.04034	86.3	61.15 56.35
1.112	0.89346	45.6	0.45663	86.6	9.95448	2.48	9.04048	86.6	61.18 42.61
1.113	0.89389	45.7	0.45603	86.7	9.95551	2.48	9.04061	86.9	61.21 48.88
1.114	0.89431	45.8	0.45543	86.8	9.95654	2.47	9.04075	87.2	61.25 55.14
1.115	0.89475	45.9	0.45483	86.9	9.95757	2.47	9.04088	87.5	61.29 01.41
1.116	0.89518	46.0	0.45423	87.0	9.95860	2.46	9.04101	87.8	61.34 07.67
1.117	0.89560	46.1	0.45363	87.1	9.95963	2.46	9.04114	88.1	61.38 13.94
1.118	0.89603	46.2	0.45303	87.2	9.96066	2.45	9.04127	88.4	61.42 20.21
1.119	0.89645	46.3	0.45243	87.3	9.96169	2.45	9.04140	88.7	61.46 26.48
1.120	0.89688	46.4	0.45183	87.4	9.96272	2.44	9.04153	89.0	61.50 32.75
1.121	0.89730	46.5	0.45123	87.5	9.96375	2.44	9.04166	89.3	61.54 39.02
1.122	0.89773	46.6	0.45063	87.6	9.96478	2.43	9.04179	89.6	61.58 45.29
1.123	0.89815	46.7	0.45003	87.7	9.96581	2.43	9.04192	89.9	61.62 51.56
1.124	0.89858	46.8	0.44943	87.8	9.96684	2.42	9.04205	90.2	61.66 57.83
1.125	0.89900	46.9	0.44883	87.9	9.96787	2.42	9.04218	90.5	61.70 64.10
1.126	0.89943	47.0	0.44823	88.0	9.96890	2.41	9.04231	90.8	61.74 70.37
1.127	0.89985	47.1	0.44763	88.1	9.96993	2.41	9.04244	91.1	61.78 76.64
1.128	0.90028	47.2	0.44703	88.2	9.97096	2.40	9.04257	91.4	61.82 82.91
1.129	0.90070	47.3	0.44643	88.3	9.97199	2.40	9.04270	91.7	61.86 89.18
1.130	0.90113	47.4	0.44583	88.4	9.97302	2.39	9.04283	92.0	61.90 95.45
1.131	0.90155	47.5	0.44523	88.5	9.97405	2.39	9.04296	92.3	61.94 101.72
1.132	0.90198	47.6	0.44463	88.6	9.97508	2.38	9.04309	92.6	61.98 107.99
1.133	0.90240	47.7	0.44403	88.7	9.97611	2.38	9.04322	92.9	62.02 114.26
1.134	0.90283	47.8	0.44343	88.8	9.97714	2.37	9.04335	93.2	62.06 120.53
1.135	0.90325	47.9	0.44283	88.9	9.97817	2.37	9.04348	93.5	62.10 126.80
1.136	0.90368	48.0	0.44223	89.0	9.97920	2.36	9.04361	93.8	62.14 133.07
1.137	0.90410	48.1	0.44163	89.1	9.98023	2.36	9.04374	94.1	62.18 139.34
1.138	0.90453	48.2	0.44103	89.2	9.98126	2.35	9.04387	94.4	62.22 145.61
1.139	0.90495	48.3	0.44043	89.3	9.98229	2.35	9.04400	94.7	62.26 151.88
1.140	0.90538	48.4	0.43983	89.4	9.98332	2.34	9.04413	95.0	62.30 158.15
1.141	0.90580	48.5	0.43923	89.5	9.98435	2.34	9.04426	95.3	62.34 164.42
1.142	0.90623	48.6	0.43863	89.6	9.98538	2.33	9.04439	95.6	62.38 170.69
1.143	0.90665	48.7	0.43803	89.7	9.98641	2.33	9.04452	95.9	62.42 176.96
1.144	0.90708	48.8	0.43743	89.8	9.98744	2.32	9.04465	96.2	62.46 183.23
1.145	0.90750	48.9	0.43683	89.9	9.98847	2.32	9.04478	96.5	62.50 189.50
1.146	0.90793	49.0	0.43623	90.0	9.98950	2.31	9.04491	96.8	62.54 195.77
1.147	0.90835	49.1	0.43563	90.1	9.99053	2.31	9.04504	97.1	62.58 202.04
1.148	0.90878	49.2	0.43503	90.2	9.99156	2.30	9.04517	97.4	62.62 208.31
1.149	0.90920	49.3	0.43443	90.3	9.99259	2.30	9.04530	97.7	62.66 214.58
1.150	0.90963	49.4	0.43383	90.4	9.99362	2.29	9.04543	98.0	62.70 220.85
1.151	0.91005	49.5	0.43323	90.5	9.99465	2.29	9.04556	98.3	62.74 227.12
1.152	0.91048	49.6	0.43263	90.6	9.99568	2.28	9.04569	98.6	62.78 233.39
1.153	0.91090	49.7	0.43203	90.7	9.99671	2.28	9.04582	98.9	62.82 239.66
1.154	0.91133	49.8	0.43143	90.8	9.99774	2.27	9.04595	99.2	62.86 245.93
1.155	0.91175	49.9	0.43083	90.9	9.99877	2.27	9.04608	99.5	62.90 252.20
1.156	0.91218	50.0	0.43023	91.0	9.99980	2.26	9.04621	99.8	62.94 258.47
1.157	0.91260	50.1	0.42963	91.1	10.00083	2.26	9.04634	100.1	62.98 264.74
1.158	0.91303	50.2	0.42903	91.2	10.00186	2.25	9.04647	100.4	63.02 271.01
1.159	0.91345	50.3	0.42843	91.3	10.00289	2.25	9.04660	100.7	63.06 277.28
1.160	0.91388	50.4	0.42783	91.4	10.00392	2.24	9.04673	101.0	63.10 283.55
1.161	0.91430	50.5	0.42723	91.5	10.00495	2.24	9.04686	101.3	63.14 289.82
1.162	0.91473	50.6	0.42663	91.6	10.00598	2.23	9.04699	101.6	63.18 296.09
1.163	0.91515	50.7	0.42603	91.7	10.00701	2.23	9.04712	101.9	63.22 302.36
1.164	0.91558	50.8	0.42543	91.8	10.00804	2.22	9.04725	102.2	63.26 308.63
1.165	0.91600	50.9	0.42483	91.9	10.00907	2.22	9.04738	102.5	63.30 314.90
1.166	0.91643	51.0	0.42423	92.0	10.01010	2.21	9.04751	102.8	63.34 321.17
1.167	0.91685	51.1	0.42363	92.1	10.01113	2.21	9.04764	103.1	63.38 327.44
1.168	0.91728	51.2	0.42303	92.2	10.01216	2.20	9.04777	103.4	63.42 333.71
1.169	0.91770	51.3	0.42243	92.3	10.01319	2.20	9.04790	103.7	63.46 340.00
1.170	0.91813	51.4	0.42183	92.4	10.01422	2.19	9.04803	104.0	63.50 346.27
1.171	0.91855	51.5	0.42123	92.5	10.01525	2.19	9.04816	104.3	63.54 352.54
1.172	0.91898	51.6	0.42063	92.6	10.01628	2.18	9.04829	104.6	63.58 358.81
1.173	0.91940	51.7	0.42003	92.7	10.01731	2.18	9.04842	104.9	63.62 365.08
1.174	0.91983	51.8	0.41943	92.8	10.01834	2.17	9.04855	105.2	63.66 371.35
1.175	0.92025	51.9	0.41883	92.9	10.01937	2.17	9.04868	105.5	63.70 377.62
1.176	0.92068	52.0	0.41823	93.0	10.02040	2.16	9.04881	105.8	63.74 383.89
1.177	0.92110	52.1	0.41763	93.1	10.02143	2.16	9.04894	106.1	63.78 390.16
1.178	0.92153	52.2	0.41703	93.2	10.02246	2.15	9.04907	106.4	63.82 396.43
1.179	0.92195	52.3	0.41643	93.3	10.02349	2.15	9.04920	106.7	63.86 402.70
1.180	0.92238	52.4	0.41583	93.4	10.02452	2.14	9.04933	107.0	63.90 408.97
1.181	0.92280	52.5	0.41523	93.5	10.02555	2.14	9.04946	107.3	63.94 415.24
1.182	0.92323	52.6	0.41463	93.6	10.02658	2.13	9.04959	107.6	63.98 421.51
1.183	0.92365	52.7	0.41403	93.7	10.02761	2.13	9.04972	107.9	64.02 427.78
1.184	0.92408	52.8	0.41343	93.8	10.02864	2.12	9.04985	108.2	64.06 434.05
1.185	0.92450	52.9	0.41283	93.9	10.02967	2.12	9.04998	108.5	64.10 440.32
1.186	0.92493	53.0	0.41223	94.0	10.03070	2.11	9.05011	108.8	64.14 446.59
1.187	0.92535	53.1	0.41163	94.1	10.03173	2.11	9.05024	109.1	64.18 452.86
1.188	0.92578	53.2	0.41103	94.2	10.03276	2.10	9.05037	109.4	64.22 459.13
1.189	0.92620	53.3	0.41043	94.3	10.03379	2.10	9.05050	109.7	64.26 465.40
1.190	0.92663	53.4	0.40983	94.4	10.03482	2.09	9.05063	110.0	64.30 471.67
1.191	0.92705	53.5	0.40923	94.5	10.03585	2.09	9.05076	110.3	64.34 477.94
1.192	0.92748	53.6	0.40863	94.6	10.03688	2.08	9.05089	110.6	64.38 484.21
1.193	0.92790	53.7	0.40803	94.7	10.03791	2.08	9.05102	110.9	64.42 490.48
1.194	0.92833	53.8	0.40743	94.8	10.03894	2.07	9.05115	111.2	64.46 496.75
1.195	0.92875	53.9	0.40683	94.9	10.03997	2.07	9.05128	111.5	64.50 503.02
1.196	0.92918	54.0	0.40623	95.0	10.04100	2.06	9.05141	111.8	64.54 509.29
1.197	0.92960	54.1	0.40563	95.1	10.04203	2.06	9.05154	112.1	64.58 515.56
1.198	0.93003	54.2	0.40503	95.2	10.04306	2.05	9.05167	112.4	64.62 521.83
1.199	0.93045	54.3	0.40443	95.3	10.04409	2.05	9.05180	112.7	64.66 528.10
1.200	0.93088	54.4	0.40383	95.4	10.04512	2.04	9.05193	113.0	64.70 534.37
1.201	0.93130	54.5	0.40323	95.5	10.04615	2.04	9.05206	113.3	64.74 540.64
1.202	0.93173	54.6	0.40263	95.6	10.04718	2.03	9.05219	113.6	64.78 546.91
1.203	0.93215	54.7	0.40203	95.7	10.04821	2.03	9.05232	113.9	64.82 553.18
1.204	0.93258	54.8	0.40143	95.8	10.04924	2.02	9.05245	114.2	64.86 559.45
1.205	0.93300	54.9	0.40083	95.9	10.05027	2.02	9.05258	114.5	64.90 565.72
1.206	0.93343	55.0	0.40023	96.0	10.05130	2.01	9.05271	114.8	64.94 571.99
1.207	0.93385	55.1	0.39963	96.1	10.05233	2.01	9.05284	115.1	64.98 578.26
1.208	0.93428	55.2	0.39903	96.2	10.05336	2.00	9.05297	115.4	65.02 584.53
1.209	0.93470	55.3	0.39843	96.3	10.05439	2.00	9.05310	115.7	65.06 590.80
1.210	0.93513	55.4	0.39783	96.4	10.05542	1.99	9.05323	116.0	65.10 597.07
1.211	0.93555	55.5	0.39723	96.5					

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
1. 190	0.91296	40.8	0.40819	91.3	0.06036	19.1	0.61118	57.0	65 53 24.53
1. 191	0.91317	40.8	0.40757	91.3	0.06055	19.1	0.61021	57.3	65 50 50.79
1. 192	0.91337	40.7	0.40695	91.4	0.06075	19.1	0.60923	57.6	65 48 17.00
1. 193	0.91359	40.6	0.40633	91.4	0.06094	19.1	0.60825	57.8	65 45 43.12
1. 194	0.91380	40.5	0.40571	91.4	0.06113	19.2	0.60728	58.1	65 43 09.50
1. 195	0.91400	40.4	0.40509	91.5	0.06132	19.2	0.60630	58.4	65 40 35.85
1. 196	0.91520	40.3	0.40300	91.5	0.06152	19.1	0.60531	58.6	65 38 02.12
1. 197	0.91540	40.2	0.40200	91.6	0.06171	19.1	0.60432	58.9	65 35 28.38
1. 198	0.91660	40.1	0.40117	91.6	0.06190	19.0	0.60333	59.2	65 32 54.65
1. 199	0.91680	40.0	0.40020	91.6	0.06209	19.0	0.60234	59.4	65 30 20.91
1. 200	0.91680	39.9	0.39934	91.7	0.06228	18.9	0.60134	59.7	65 27 47.18
1. 201	0.91730	39.8	0.39812	91.7	0.06246	18.9	0.60034	100.0	65 25 13.44
1. 202	0.91790	39.8	0.39751	91.8	0.06265	18.8	0.59934	100.3	65 22 39.70
1. 203	0.91800	39.7	0.39690	91.8	0.06284	18.8	0.59834	100.5	65 20 05.97
1. 204	0.91830	39.6	0.39627	91.8	0.06303	18.7	0.59733	100.8	65 17 32.23
1. 205	0.91890	39.5	0.39475	91.9	0.06322	18.7	0.59632	101.1	65 14 58.50
1. 206	0.91918	39.4	0.39393	91.9	0.06340	18.6	0.59531	101.4	65 12 24.76
1. 207	0.91958	39.3	0.39301	92.0	0.06359	18.6	0.59430	101.6	65 10 01.03
1. 208	0.91997	39.2	0.39199	92.0	0.06377	18.5	0.59328	101.9	65 07 27.29
1. 209	0.92036	39.1	0.39107	92.0	0.06396	18.5	0.59226	102.2	65 04 53.56
1. 210	0.92095	39.0	0.39015	92.1	0.06414	18.4	0.59123	102.5	65 02 19.82
1. 211	0.92114	38.9	0.38923	92.1	0.06433	18.4	0.59021	102.8	65 00 46.09
1. 212	0.92153	38.8	0.38831	92.2	0.06451	18.3	0.58918	103.1	64 58 12.35
1. 213	0.92192	38.7	0.38739	92.2	0.06469	18.2	0.58815	103.4	64 55 38.62
1. 214	0.92230	38.6	0.38647	92.2	0.06487	18.2	0.58711	103.6	64 53 04.88
1. 215	0.92269	38.6	0.38554	92.3	0.06506	18.1	0.58607	103.9	64 50 31.15
1. 216	0.92307	38.5	0.38462	92.3	0.06524	18.1	0.58503	104.2	64 47 57.41
1. 217	0.92346	38.4	0.38370	92.3	0.06542	18.0	0.58399	104.5	64 45 23.68
1. 218	0.92384	38.3	0.38277	92.4	0.06560	18.0	0.58294	104.8	64 42 49.94
1. 219	0.92422	38.2	0.38185	92.4	0.06578	17.9	0.58189	105.1	64 40 26.21
1. 220	0.92461	38.1	0.38092	92.5	0.06596	17.9	0.58085	105.4	64 37 52.47
1. 221	0.92499	38.0	0.38000	92.5	0.06614	17.8	0.57978	105.7	64 35 18.74
1. 222	0.92537	37.9	0.37907	92.5	0.06632	17.8	0.57872	106.0	64 32 45.00
1. 223	0.92574	37.8	0.37815	92.6	0.06650	17.7	0.57766	106.3	64 30 21.27
1. 224	0.92612	37.7	0.37722	92.6	0.06667	17.7	0.57660	106.6	64 27 47.53
1. 225	0.92650	37.6	0.37630	92.6	0.06684	17.6	0.57553	106.9	64 25 13.80
1. 226	0.92687	37.5	0.37537	92.7	0.06702	17.6	0.57446	107.2	64 22 40.06
1. 227	0.92725	37.4	0.37444	92.7	0.06720	17.5	0.57339	107.5	64 20 06.33
1. 228	0.92762	37.3	0.37352	92.8	0.06737	17.5	0.57231	107.8	64 17 32.59
1. 229	0.92800	37.2	0.37259	92.8	0.06755	17.4	0.57123	108.2	64 14 58.85
1. 230	0.92837	37.1	0.37166	92.8	0.06772	17.4	0.57015	108.5	64 12 25.12
1. 231	0.92874	37.0	0.37073	92.9	0.06790	17.3	0.56908	108.8	64 10 01.38
1. 232	0.92911	36.9	0.36980	92.9	0.06807	17.3	0.56800	109.1	64 07 27.65
1. 233	0.92948	36.8	0.36887	92.9	0.06824	17.2	0.56693	109.4	64 05 03.91
1. 234	0.92985	36.8	0.36794	93.0	0.06841	17.2	0.56585	109.8	64 02 30.18
1. 235	0.93022	36.7	0.36701	93.0	0.06858	17.1	0.56478	110.1	64 00 06.44
1. 236	0.93059	36.6	0.36608	93.1	0.06875	17.1	0.56370	110.4	63 57 32.71
1. 237	0.93095	36.5	0.36515	93.1	0.06893	17.0	0.56262	110.7	63 55 08.97
1. 238	0.93131	36.4	0.36422	93.1	0.06910	17.0	0.56153	111.0	63 52 35.24
1. 239	0.93168	36.3	0.36329	93.2	0.06927	16.9	0.56045	111.4	63 50 11.50
1. 240	0.93204	36.2	0.36236	93.2	0.06943	16.9	0.55937	111.7	63 47 37.77
u	$-\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u

Circular Functions.

x	$\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	π
1.200	0.93301	36.2	0.35726	93.7	0.95913	36.0	0.35944	116.7	68° 45' 17.72"
1.201	0.93310	36.1	0.35713	93.7	0.95920	36.0	0.35931	116.9	68° 45' 46.01"
1.202	0.93319	36.0	0.35699	93.7	0.95927	36.0	0.35920	117.1	68° 46' 16.30"
1.203	0.93327	35.9	0.35685	93.7	0.95934	36.0	0.35907	117.3	68° 46' 48.59"
1.204	0.93335	35.9	0.35671	93.7	0.95941	36.0	0.35894	117.5	68° 47' 22.88"
1.205	0.93343	35.8	0.35656	93.7	0.95947	36.0	0.35881	117.7	68° 47' 59.16"
1.206	0.93350	35.7	0.35640	93.7	0.95954	36.0	0.35867	117.9	68° 48' 36.45"
1.207	0.93357	35.6	0.35624	93.7	0.95960	36.0	0.35853	118.1	68° 49' 15.74"
1.208	0.93364	35.5	0.35608	93.7	0.95967	36.0	0.35839	118.3	68° 49' 57.03"
1.209	0.93371	35.4	0.35592	93.7	0.95973	36.0	0.35825	118.5	68° 50' 40.32"
1.210	0.93378	35.3	0.35575	93.7	0.95979	36.0	0.35811	118.7	68° 51' 25.61"
1.211	0.93385	35.2	0.35558	93.7	0.95985	36.0	0.35797	118.9	68° 52' 12.90"
1.212	0.93392	35.1	0.35541	93.7	0.95991	36.0	0.35783	119.1	68° 52' 52.19"
1.213	0.93399	35.0	0.35524	93.7	0.95997	36.0	0.35769	119.3	68° 53' 33.48"
1.214	0.93406	34.9	0.35507	93.7	0.96003	36.0	0.35755	119.5	68° 54' 16.77"
1.215	0.93413	34.8	0.35490	93.7	0.96009	36.0	0.35741	119.7	68° 55' 02.06"
1.216	0.93420	34.7	0.35473	93.7	0.96015	36.0	0.35727	119.9	68° 55' 39.35"
1.217	0.93427	34.6	0.35456	93.7	0.96021	36.0	0.35713	120.1	68° 56' 18.64"
1.218	0.93434	34.5	0.35439	93.7	0.96027	36.0	0.35699	120.3	68° 56' 59.93"
1.219	0.93441	34.4	0.35422	93.7	0.96033	36.0	0.35685	120.5	68° 57' 43.22"
1.220	0.93448	34.3	0.35405	93.7	0.96039	36.0	0.35671	120.7	68° 58' 28.51"
1.221	0.93455	34.2	0.35388	93.7	0.96045	36.0	0.35657	120.9	68° 59' 15.80"
1.222	0.93462	34.1	0.35371	93.7	0.96051	36.0	0.35643	121.1	69° 00' 05.09"
1.223	0.93469	34.0	0.35354	93.7	0.96057	36.0	0.35629	121.3	69° 00' 56.38"
1.224	0.93476	33.9	0.35337	93.7	0.96063	36.0	0.35615	121.5	69° 01' 49.67"
1.225	0.93483	33.8	0.35320	93.7	0.96069	36.0	0.35601	121.7	69° 02' 44.96"
1.226	0.93490	33.7	0.35303	93.7	0.96075	36.0	0.35587	121.9	69° 03' 42.25"
1.227	0.93497	33.6	0.35286	93.7	0.96081	36.0	0.35573	122.1	69° 04' 41.54"
1.228	0.93504	33.5	0.35269	93.7	0.96087	36.0	0.35559	122.3	69° 05' 42.83"
1.229	0.93511	33.4	0.35252	93.7	0.96093	36.0	0.35545	122.5	69° 06' 46.12"
1.230	0.93518	33.3	0.35235	93.7	0.96099	36.0	0.35531	122.7	69° 07' 51.41"
1.231	0.93525	33.2	0.35218	93.7	0.96105	36.0	0.35517	122.9	69° 08' 48.70"
1.232	0.93532	33.1	0.35201	93.7	0.96111	36.0	0.35503	123.1	69° 09' 48.99"
1.233	0.93539	33.0	0.35184	93.7	0.96117	36.0	0.35489	123.3	69° 10' 52.28"
1.234	0.93546	32.9	0.35167	93.7	0.96123	36.0	0.35475	123.5	69° 11' 57.57"
1.235	0.93553	32.8	0.35150	93.7	0.96129	36.0	0.35461	123.7	69° 12' 54.86"
1.236	0.93560	32.7	0.35133	93.7	0.96135	36.0	0.35447	123.9	69° 13' 54.15"
1.237	0.93567	32.6	0.35116	93.7	0.96141	36.0	0.35433	124.1	69° 14' 55.44"
1.238	0.93574	32.5	0.35099	93.7	0.96147	36.0	0.35419	124.3	69° 15' 58.73"
1.239	0.93581	32.4	0.35082	93.7	0.96153	36.0	0.35405	124.5	69° 16' 64.02"
1.240	0.93588	32.3	0.35065	93.7	0.96159	36.0	0.35391	124.7	69° 17' 11.31"
1.241	0.93595	32.2	0.35048	93.7	0.96165	36.0	0.35377	124.9	69° 18' 10.60"
1.242	0.93602	32.1	0.35031	93.7	0.96171	36.0	0.35363	125.1	69° 19' 11.89"
1.243	0.93609	32.0	0.35014	93.7	0.96177	36.0	0.35349	125.3	69° 20' 15.18"
1.244	0.93616	31.9	0.34997	93.7	0.96183	36.0	0.35335	125.5	69° 21' 20.47"
1.245	0.93623	31.8	0.34980	93.7	0.96189	36.0	0.35321	125.7	69° 22' 27.76"
1.246	0.93630	31.7	0.34963	93.7	0.96195	36.0	0.35307	125.9	69° 23' 37.05"
1.247	0.93637	31.6	0.34946	93.7	0.96201	36.0	0.35293	126.1	69° 24' 48.34"
1.248	0.93644	31.5	0.34929	93.7	0.96207	36.0	0.35279	126.3	69° 25' 51.63"
1.249	0.93651	31.4	0.34912	93.7	0.96213	36.0	0.35265	126.5	69° 26' 56.92"
1.250	0.93658	31.3	0.34895	93.7	0.96219	36.0	0.35251	126.7	69° 28' 04.21"
1.251	0.93665	31.2	0.34878	93.7	0.96225	36.0	0.35237	126.9	69° 29' 13.50"
1.252	0.93672	31.1	0.34861	93.7	0.96231	36.0	0.35223	127.1	69° 30' 24.79"
1.253	0.93679	31.0	0.34844	93.7	0.96237	36.0	0.35209	127.3	69° 31' 38.08"
1.254	0.93686	30.9	0.34827	93.7	0.96243	36.0	0.35195	127.5	69° 32' 53.37"
1.255	0.93693	30.8	0.34810	93.7	0.96249	36.0	0.35181	127.7	69° 34' 10.66"
1.256	0.93700	30.7	0.34793	93.7	0.96255	36.0	0.35167	127.9	69° 35' 30.95"
1.257	0.93707	30.6	0.34776	93.7	0.96261	36.0	0.35153	128.1	69° 36' 54.24"
1.258	0.93714	30.5	0.34759	93.7	0.96267	36.0	0.35139	128.3	69° 38' 20.53"
1.259	0.93721	30.4	0.34742	93.7	0.96273	36.0	0.35125	128.5	69° 39' 49.82"
1.260	0.93728	30.3	0.34725	93.7	0.96279	36.0	0.35111	128.7	69° 41' 22.11"
1.261	0.93735	30.2	0.34708	93.7	0.96285	36.0	0.35097	128.9	69° 42' 57.40"
1.262	0.93742	30.1	0.34691	93.7	0.96291	36.0	0.35083	129.1	69° 44' 35.69"
1.263	0.93749	30.0	0.34674	93.7	0.96297	36.0	0.35069	129.3	69° 46' 16.98"
1.264	0.93756	29.9	0.34657	93.7	0.96303	36.0	0.35055	129.5	69° 47' 51.27"
1.265	0.93763	29.8	0.34640	93.7	0.96309	36.0	0.35041	129.7	69° 49' 18.56"
1.266	0.93770	29.7	0.34623	93.7	0.96315	36.0	0.35027	129.9	69° 50' 48.85"
1.267	0.93777	29.6	0.34606	93.7	0.96321	36.0	0.35013	130.1	69° 52' 22.14"
1.268	0.93784	29.5	0.34589	93.7	0.96327	36.0	0.35000	130.3	69° 53' 58.43"
1.269	0.93791	29.4	0.34572	93.7	0.96333	36.0	0.34986	130.5	69° 55' 37.72"
1.270	0.93798	29.3	0.34555	93.7	0.96339	36.0	0.34972	130.7	69° 57' 10.01"
1.271	0.93805	29.2	0.34538	93.7	0.96345	36.0	0.34958	130.9	69° 58' 45.30"
1.272	0.93812	29.1	0.34521	93.7	0.96351	36.0	0.34944	131.1	69° 60' 13.59"
1.273	0.93819	29.0	0.34504	93.7	0.96357	36.0	0.34930	131.3	69° 61' 44.88"
1.274	0.93826	28.9	0.34487	93.7	0.96363	36.0	0.34916	131.5	69° 63' 19.17"
1.275	0.93833	28.8	0.34470	93.7	0.96369	36.0	0.34902	131.7	69° 64' 46.46"
1.276	0.93840	28.7	0.34453	93.7	0.96375	36.0	0.34888	131.9	69° 66' 16.75"
1.277	0.93847	28.6	0.34436	93.7	0.96381	36.0	0.34874	132.1	69° 67' 50.04"
1.278	0.93854	28.5	0.34419	93.7	0.96387	36.0	0.34860	132.3	69° 69' 26.33"
1.279	0.93861	28.4	0.34402	93.7	0.96393	36.0	0.34846	132.5	69° 71' 05.62"
1.280	0.93868	28.3	0.34385	93.7	0.96399	36.0	0.34832	132.7	69° 72' 48.91"
1.281	0.93875	28.2	0.34368	93.7	0.96405	36.0	0.34818	132.9	69° 74' 36.20"
1.282	0.93882	28.1	0.34351	93.7	0.96411	36.0	0.34804	133.1	69° 76' 27.49"
1.283	0.93889	28.0	0.34334	93.7	0.96417	36.0	0.34790	133.3	69° 78' 22.78"
1.284	0.93896	27.9	0.34317	93.7	0.96423	36.0	0.34776	133.5	69° 80' 22.07"
1.285	0.93903	27.8	0.34300	93.7	0.96429	36.0	0.34762	133.7	69° 82' 25.36"
1.286	0.93910	27.7	0.34283	93.7	0.96435	36.0	0.34748	133.9	69° 84' 32.65"
1.287	0.93917	27.6	0.34266	93.7	0.96441	36.0	0.34734	134.1	69° 86' 43.94"
1.288	0.93924	27.5	0.34249	93.7	0.96447	36.0	0.34720	134.3	69° 88' 59.23"
1.289	0.93931	27.4	0.34232	93.7	0.96453	36.0	0.34706	134.5	69° 91' 18.52"
1.290	0.93938	27.3	0.34215	93.7	0.96459	36.0	0.34692	134.7	69° 93' 41.81"
1.291	0.93945	27.2	0.34198	93.7	0.96465	36.0	0.34678	134.9	69° 96' 09.10"
1.292	0.93952	27.1	0.34181	93.7	0.96471	36.0	0.34664	135.1	69° 98' 40.39"
1.293	0.93959	27.0	0.34164	93.7	0.96477	36.0	0.34650	135.3	69° 10' 15.68"
1.294	0.93966	26.9	0.34147	93.7	0.96483	36.0	0.34636	135.5	69° 11' 54.97"
1.295	0.93973	26.8	0.34130	93.7	0.96489	36.0	0.34622	135.7	69° 13' 38.26"
1.296	0.93980	26.7	0.34113	93.7	0.96495	36.0	0.34608	135.9	69° 15' 25.55"
1.297	0.93987	26.6	0.34096	93.7	0.96501	36.0	0.34594	136.1	69° 17' 16.84"
1.298	0.93994	26.5	0.34079	93.7	0.96507	36.0	0.34580	136.3	69° 19' 12.13"
1.299	0.94001	26.4	0.34062	93.7	0.96513	36.0	0.34566	136.5	69° 21' 11.42"
1.300	0.94008	26.3	0.34045	93.7	0.96519	36.0	0.34552	136.7	69° 23' 14.71"

Circular Functions.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u
$\pi - .250$	0.4898	31.5	0.31532	94.0	9.97725	14.1	0.49875	130.7	71 37 11.04
$\pi - .251$	0.4903	31.4	0.31437	94.0	9.97740	14.1	0.49745	131.1	71 40 37.37
$\pi - .252$	0.4908	31.3	0.31342	95.0	9.97755	14.1	0.49613	131.6	71 44 03.51
$\pi - .253$	0.4913	31.2	0.31247	95.0	9.97770	14.1	0.49481	132.0	71 47 29.80
$\pi - .254$	0.4918	31.2	0.31152	95.0	9.97785	14.2	0.49349	132.5	71 50 56.07
$\pi - .255$	0.4923	31.1	0.31057	95.1	9.97797	14.2	0.49216	132.0	71 54 22.33
$\pi - .256$	0.4928	31.0	0.30962	95.1	9.97812	14.1	0.49083	132.4	71 57 48.60
$\pi - .257$	0.4933	30.9	0.30867	95.1	9.97826	14.1	0.48950	132.8	72 01 14.86
$\pi - .258$	0.4938	30.8	0.30772	95.1	9.97840	14.0	0.48816	133.3	72 04 41.13
$\pi - .259$	0.4943	30.7	0.30677	95.2	9.97854	14.0	0.48681	133.7	72 08 07.39
$\pi - .260$	0.4948	30.6	0.30582	95.2	9.97868	13.9	0.48546	134.2	72 11 33.66
$\pi - .261$	0.4953	30.5	0.30486	95.2	9.97884	13.9	0.48411	134.7	72 14 59.92
$\pi - .262$	0.4958	30.4	0.30391	95.3	9.97897	13.9	0.48275	135.1	72 18 26.19
$\pi - .263$	0.4963	30.3	0.30296	95.3	9.97909	13.8	0.48139	135.6	72 21 52.45
$\pi - .264$	0.4968	30.2	0.30201	95.3	9.97923	13.7	0.48002	136.1	72 25 18.72
$\pi - .265$	0.4973	30.1	0.30105	95.4	9.97937	13.7	0.47865	136.6	72 28 44.98
$\pi - .266$	0.4978	30.0	0.30010	95.4	9.97951	13.7	0.47728	137.0	72 32 21.24
$\pi - .267$	0.4983	29.9	0.29914	95.4	9.97964	13.6	0.47591	137.5	72 35 47.51
$\pi - .268$	0.4988	29.8	0.29819	95.5	9.97978	13.6	0.47454	137.9	72 39 23.77
$\pi - .269$	0.4993	29.7	0.29724	95.5	9.97991	13.5	0.47317	138.4	72 42 50.04
$\pi - .270$	0.4998	29.6	0.29628	95.5	9.98005	13.5	0.47180	138.9	72 46 26.30
$\pi - .271$	0.5003	29.5	0.29533	95.5	9.98018	13.4	0.47043	139.3	72 50 02.57
$\pi - .272$	0.5008	29.4	0.29437	95.6	9.98032	13.4	0.46906	139.8	72 53 28.83
$\pi - .273$	0.5013	29.3	0.29341	95.6	9.98045	13.3	0.46769	140.3	72 57 05.10
$\pi - .274$	0.5018	29.2	0.29246	95.6	9.98058	13.3	0.46632	140.8	73 00 31.36
$\pi - .275$	0.5023	29.1	0.29150	95.7	9.98072	13.2	0.46495	141.3	73 03 57.63
$\pi - .276$	0.5028	29.0	0.29054	95.7	9.98085	13.2	0.46358	141.8	73 07 23.89
$\pi - .277$	0.5033	28.9	0.28959	95.7	9.98098	13.1	0.46221	142.3	73 10 50.16
$\pi - .278$	0.5038	28.8	0.28863	95.7	9.98111	13.1	0.46084	142.8	73 14 16.42
$\pi - .279$	0.5043	28.7	0.28767	95.8	9.98124	13.0	0.45947	143.3	73 17 42.69
$\pi - .280$	0.5048	28.6	0.28672	95.8	9.98137	13.0	0.45810	143.8	73 21 08.95
$\pi - .281$	0.5053	28.5	0.28576	95.8	9.98150	13.0	0.45673	144.3	73 24 35.22
$\pi - .282$	0.5058	28.4	0.28480	95.9	9.98163	12.9	0.45536	144.8	73 28 01.48
$\pi - .283$	0.5063	28.3	0.28384	95.9	9.98176	12.9	0.45399	145.3	73 31 27.75
$\pi - .284$	0.5068	28.2	0.28288	95.9	9.98189	12.8	0.45262	145.8	73 35 04.01
$\pi - .285$	0.5073	28.1	0.28192	95.9	9.98202	12.8	0.45125	146.3	73 38 30.28
$\pi - .286$	0.5078	28.0	0.28096	96.0	9.98214	12.7	0.44988	146.8	73 41 56.54
$\pi - .287$	0.5083	27.9	0.28000	96.0	9.98227	12.7	0.44851	147.3	73 45 22.81
$\pi - .288$	0.5088	27.8	0.27904	96.0	9.98240	12.6	0.44714	147.8	73 48 49.07
$\pi - .289$	0.5093	27.7	0.27808	96.1	9.98252	12.6	0.44577	148.3	73 52 15.34
$\pi - .290$	0.5098	27.6	0.27712	96.1	9.98265	12.5	0.44440	148.8	73 55 41.60
$\pi - .291$	0.5103	27.5	0.27616	96.1	9.98277	12.5	0.44303	149.3	73 59 07.86
$\pi - .292$	0.5108	27.4	0.27520	96.1	9.98290	12.4	0.44166	149.8	74 02 34.13
$\pi - .293$	0.5113	27.3	0.27424	96.2	9.98302	12.4	0.44029	150.3	74 06 00.39
$\pi - .294$	0.5118	27.2	0.27328	96.2	9.98315	12.3	0.43892	150.8	74 09 26.66
$\pi - .295$	0.5123	27.1	0.27232	96.2	9.98327	12.3	0.43755	151.3	74 12 52.92
$\pi - .296$	0.5128	27.0	0.27135	96.2	9.98339	12.2	0.43618	151.8	74 16 19.19
$\pi - .297$	0.5133	26.9	0.27039	96.3	9.98351	12.2	0.43481	152.3	74 19 45.45
$\pi - .298$	0.5138	26.8	0.26943	96.3	9.98364	12.2	0.43344	152.8	74 23 11.72
$\pi - .299$	0.5143	26.7	0.26846	96.3	9.98376	12.1	0.43207	153.3	74 26 37.98
$\pi - .300$	0.5148	26.6	0.26750	96.4	9.98388	12.1	0.43070	153.8	74 30 04.25
u	$-\sin u$	$\cos u$	$\tan u$	$\cot u$	$\log \sin u$	$\log \cos u$	$\log \tan u$	$\log \cot u$	u

Circular Functions.

α	$\sin \alpha$	$\cos \alpha$	$\tan \alpha$	$\sec \alpha$	$\csc \alpha$	$\cot \alpha$	α
1.300	0.96356	0.26799	3.5988	3.7321	1.0350	0.96356	74.99 04.25
.301	0.96383	0.26754	3.6000	3.7321	1.0350	0.96383	74.99 04.25
.302	0.96410	0.26709	3.6012	3.7321	1.0350	0.96410	74.99 04.25
.303	0.96437	0.26664	3.6024	3.7321	1.0350	0.96437	74.99 04.25
.304	0.96464	0.26619	3.6036	3.7321	1.0350	0.96464	74.99 04.25
1.305	0.96491	0.26574	3.6048	3.7321	1.0350	0.96491	74.99 04.25
.306	0.96518	0.26529	3.6060	3.7321	1.0350	0.96518	74.99 04.25
.307	0.96545	0.26484	3.6072	3.7321	1.0350	0.96545	74.99 04.25
.308	0.96572	0.26439	3.6084	3.7321	1.0350	0.96572	74.99 04.25
.309	0.96599	0.26394	3.6096	3.7321	1.0350	0.96599	74.99 04.25
1.310	0.96626	0.26349	3.6108	3.7321	1.0350	0.96626	74.99 04.25
.311	0.96653	0.26304	3.6120	3.7321	1.0350	0.96653	74.99 04.25
.312	0.96680	0.26259	3.6132	3.7321	1.0350	0.96680	74.99 04.25
.313	0.96707	0.26214	3.6144	3.7321	1.0350	0.96707	74.99 04.25
.314	0.96734	0.26169	3.6156	3.7321	1.0350	0.96734	74.99 04.25
1.315	0.96761	0.26124	3.6168	3.7321	1.0350	0.96761	74.99 04.25
.316	0.96788	0.26079	3.6180	3.7321	1.0350	0.96788	74.99 04.25
.317	0.96815	0.26034	3.6192	3.7321	1.0350	0.96815	74.99 04.25
.318	0.96842	0.25989	3.6204	3.7321	1.0350	0.96842	74.99 04.25
.319	0.96869	0.25944	3.6216	3.7321	1.0350	0.96869	74.99 04.25
1.320	0.96896	0.25899	3.6228	3.7321	1.0350	0.96896	74.99 04.25
.321	0.96923	0.25854	3.6240	3.7321	1.0350	0.96923	74.99 04.25
.322	0.96950	0.25809	3.6252	3.7321	1.0350	0.96950	74.99 04.25
.323	0.96977	0.25764	3.6264	3.7321	1.0350	0.96977	74.99 04.25
.324	0.97004	0.25719	3.6276	3.7321	1.0350	0.97004	74.99 04.25
1.325	0.97031	0.25674	3.6288	3.7321	1.0350	0.97031	74.99 04.25
.326	0.97058	0.25629	3.6300	3.7321	1.0350	0.97058	74.99 04.25
.327	0.97085	0.25584	3.6312	3.7321	1.0350	0.97085	74.99 04.25
.328	0.97112	0.25539	3.6324	3.7321	1.0350	0.97112	74.99 04.25
.329	0.97139	0.25494	3.6336	3.7321	1.0350	0.97139	74.99 04.25
1.330	0.97166	0.25449	3.6348	3.7321	1.0350	0.97166	74.99 04.25
.331	0.97193	0.25404	3.6360	3.7321	1.0350	0.97193	74.99 04.25
.332	0.97220	0.25359	3.6372	3.7321	1.0350	0.97220	74.99 04.25
.333	0.97247	0.25314	3.6384	3.7321	1.0350	0.97247	74.99 04.25
.334	0.97274	0.25269	3.6396	3.7321	1.0350	0.97274	74.99 04.25
1.335	0.97301	0.25224	3.6408	3.7321	1.0350	0.97301	74.99 04.25
.336	0.97328	0.25179	3.6420	3.7321	1.0350	0.97328	74.99 04.25
.337	0.97355	0.25134	3.6432	3.7321	1.0350	0.97355	74.99 04.25
.338	0.97382	0.25089	3.6444	3.7321	1.0350	0.97382	74.99 04.25
.339	0.97409	0.25044	3.6456	3.7321	1.0350	0.97409	74.99 04.25
1.340	0.97436	0.24999	3.6468	3.7321	1.0350	0.97436	74.99 04.25
.341	0.97463	0.24954	3.6480	3.7321	1.0350	0.97463	74.99 04.25
.342	0.97490	0.24909	3.6492	3.7321	1.0350	0.97490	74.99 04.25
.343	0.97517	0.24864	3.6504	3.7321	1.0350	0.97517	74.99 04.25
.344	0.97544	0.24819	3.6516	3.7321	1.0350	0.97544	74.99 04.25
1.345	0.97571	0.24774	3.6528	3.7321	1.0350	0.97571	74.99 04.25
.346	0.97598	0.24729	3.6540	3.7321	1.0350	0.97598	74.99 04.25
.347	0.97625	0.24684	3.6552	3.7321	1.0350	0.97625	74.99 04.25
.348	0.97652	0.24639	3.6564	3.7321	1.0350	0.97652	74.99 04.25
.349	0.97679	0.24594	3.6576	3.7321	1.0350	0.97679	74.99 04.25
1.350	0.97706	0.24549	3.6588	3.7321	1.0350	0.97706	74.99 04.25
.351	0.97733	0.24504	3.6600	3.7321	1.0350	0.97733	74.99 04.25
.352	0.97760	0.24459	3.6612	3.7321	1.0350	0.97760	74.99 04.25
.353	0.97787	0.24414	3.6624	3.7321	1.0350	0.97787	74.99 04.25
.354	0.97814	0.24369	3.6636	3.7321	1.0350	0.97814	74.99 04.25
1.355	0.97841	0.24324	3.6648	3.7321	1.0350	0.97841	74.99 04.25
.356	0.97868	0.24279	3.6660	3.7321	1.0350	0.97868	74.99 04.25
.357	0.97895	0.24234	3.6672	3.7321	1.0350	0.97895	74.99 04.25
.358	0.97922	0.24189	3.6684	3.7321	1.0350	0.97922	74.99 04.25
.359	0.97949	0.24144	3.6696	3.7321	1.0350	0.97949	74.99 04.25
1.360	0.97976	0.24099	3.6708	3.7321	1.0350	0.97976	74.99 04.25
.361	0.98003	0.24054	3.6720	3.7321	1.0350	0.98003	74.99 04.25
.362	0.98030	0.24009	3.6732	3.7321	1.0350	0.98030	74.99 04.25
.363	0.98057	0.23964	3.6744	3.7321	1.0350	0.98057	74.99 04.25
.364	0.98084	0.23919	3.6756	3.7321	1.0350	0.98084	74.99 04.25
1.365	0.98111	0.23874	3.6768	3.7321	1.0350	0.98111	74.99 04.25
.366	0.98138	0.23829	3.6780	3.7321	1.0350	0.98138	74.99 04.25
.367	0.98165	0.23784	3.6792	3.7321	1.0350	0.98165	74.99 04.25
.368	0.98192	0.23739	3.6804	3.7321	1.0350	0.98192	74.99 04.25
.369	0.98219	0.23694	3.6816	3.7321	1.0350	0.98219	74.99 04.25
1.370	0.98246	0.23649	3.6828	3.7321	1.0350	0.98246	74.99 04.25
.371	0.98273	0.23604	3.6840	3.7321	1.0350	0.98273	74.99 04.25
.372	0.98300	0.23559	3.6852	3.7321	1.0350	0.98300	74.99 04.25
.373	0.98327	0.23514	3.6864	3.7321	1.0350	0.98327	74.99 04.25
.374	0.98354	0.23469	3.6876	3.7321	1.0350	0.98354	74.99 04.25
1.375	0.98381	0.23424	3.6888	3.7321	1.0350	0.98381	74.99 04.25
.376	0.98408	0.23379	3.6900	3.7321	1.0350	0.98408	74.99 04.25
.377	0.98435	0.23334	3.6912	3.7321	1.0350	0.98435	74.99 04.25
.378	0.98462	0.23289	3.6924	3.7321	1.0350	0.98462	74.99 04.25
.379	0.98489	0.23244	3.6936	3.7321	1.0350	0.98489	74.99 04.25
1.380	0.98516	0.23199	3.6948	3.7321	1.0350	0.98516	74.99 04.25
.381	0.98543	0.23154	3.6960	3.7321	1.0350	0.98543	74.99 04.25
.382	0.98570	0.23109	3.6972	3.7321	1.0350	0.98570	74.99 04.25
.383	0.98597	0.23064	3.6984	3.7321	1.0350	0.98597	74.99 04.25
.384	0.98624	0.23019	3.6996	3.7321	1.0350	0.98624	74.99 04.25
1.385	0.98651	0.22974	3.7008	3.7321	1.0350	0.98651	74.99 04.25
.386	0.98678	0.22929	3.7020	3.7321	1.0350	0.98678	74.99 04.25
.387	0.98705	0.22884	3.7032	3.7321	1.0350	0.98705	74.99 04.25
.388	0.98732	0.22839	3.7044	3.7321	1.0350	0.98732	74.99 04.25
.389	0.98759	0.22794	3.7056	3.7321	1.0350	0.98759	74.99 04.25
1.390	0.98786	0.22749	3.7068	3.7321	1.0350	0.98786	74.99 04.25
.391	0.98813	0.22704	3.7080	3.7321	1.0350	0.98813	74.99 04.25
.392	0.98840	0.22659	3.7092	3.7321	1.0350	0.98840	74.99 04.25
.393	0.98867	0.22614	3.7104	3.7321	1.0350	0.98867	74.99 04.25
.394	0.98894	0.22569	3.7116	3.7321	1.0350	0.98894	74.99 04.25
1.395	0.98921	0.22524	3.7128	3.7321	1.0350	0.98921	74.99 04.25
.396	0.98948	0.22479	3.7140	3.7321	1.0350	0.98948	74.99 04.25
.397	0.98975	0.22434	3.7152	3.7321	1.0350	0.98975	74.99 04.25
.398	0.99002	0.22389	3.7164	3.7321	1.0350	0.99002	74.99 04.25
.399	0.99029	0.22344	3.7176	3.7321	1.0350	0.99029	74.99 04.25
1.400	0.99056	0.22299	3.7188	3.7321	1.0350	0.99056	74.99 04.25
.401	0.99083	0.22254	3.7200	3.7321	1.0350	0.99083	74.99 04.25
.402	0.99110	0.22209	3.7212	3.7321	1.0350	0.99110	74.99 04.25
.403	0.99137	0.22164	3.7224	3.7321	1.0350	0.99137	74.99 04.25
.404	0.99164	0.22119	3.7236	3.7321	1.0350	0.99164	74.99 04.25
1.405	0.99191	0.22074	3.7248	3.7321	1.0350	0.99191	74.99 04.25
.406	0.99218	0.22029	3.7260	3.7321	1.0350	0.99218	74.99 04.25
.407	0.99245	0.21984	3.7272	3.7321	1.0350	0.99245	74.99 04.25
.408	0.99272	0.21939	3.7284	3.7321	1.0350	0.99272	74.99 04.25
.409	0.99299	0.21894	3.7296	3.7321	1.0350	0.99299	74.99 04.25
1.410	0.99326	0.21849	3.7308	3.7321	1.0350	0.99326	74.99 04.25
.411	0.99353	0.21804	3.7320	3.7321	1.0350	0.99353	74.99 04.25
.412	0.99380	0.21759	3.7332	3.7321	1.0350	0.99380	74.99 04.25
.413	0.99407	0.21714	3.7344	3.7321	1.0350	0.99407	74.99 04.25
.414	0.99434	0.21669	3.7356	3.7321	1.0350	0.99434	74.99 04.25
1.415	0.99461	0.21624	3.7368	3.7321	1.0350	0.99461	74.99 04.25
.416	0.99488	0.21579	3.7380	3.7321	1.0350	0.99488	74.99 04.25
.417	0.99515	0.21534	3.7392	3.7321	1.0350	0.99515	74.99 04.25
.418	0.99542	0.21489	3.7404	3.7321	1.0350	0.99542	74.99 04.25
.419	0.99569	0.21444	3.7416	3.7321	1.0350	0.99569	74.99 04.25
1.420	0.99596	0.21399	3.7428	3.7321	1.0350	0.99596	74.99 04.25
.421	0.99623	0.21354	3.7440	3.7321	1.0350	0.99623	74.99 04.25
.422	0.99650	0.21309	3.7452	3.7321	1.0350	0.99650	74.99 04.25

Circular Functions.

x	$\sin x$	$\cos x$	$\tan x$	$\cot x$	$\sec x$	$\csc x$	$\log \sin x$	$\log \cos x$	$\log \tan x$	$\log \cot x$	$\log \sec x$	$\log \csc x$
1.350	0.97572	0.21901	4.4975	0.2228	1.4564	1.4564	9.99013	9.53416	10.555	10.555	10.555	10.555
1.351	0.97583	0.21883	4.4980	0.2226	1.4566	1.4566	9.99014	9.53417	10.555	10.555	10.555	10.555
1.352	0.97594	0.21865	4.4985	0.2224	1.4568	1.4568	9.99015	9.53418	10.555	10.555	10.555	10.555
1.353	0.97605	0.21847	4.4990	0.2222	1.4570	1.4570	9.99016	9.53419	10.555	10.555	10.555	10.555
1.354	0.97616	0.21829	4.4995	0.2220	1.4572	1.4572	9.99017	9.53420	10.555	10.555	10.555	10.555
1.355	0.97627	0.21811	4.5000	0.2218	1.4574	1.4574	9.99018	9.53421	10.555	10.555	10.555	10.555
1.356	0.97638	0.21793	4.5005	0.2216	1.4576	1.4576	9.99019	9.53422	10.555	10.555	10.555	10.555
1.357	0.97649	0.21775	4.5010	0.2214	1.4578	1.4578	9.99020	9.53423	10.555	10.555	10.555	10.555
1.358	0.97660	0.21757	4.5015	0.2212	1.4580	1.4580	9.99021	9.53424	10.555	10.555	10.555	10.555
1.359	0.97671	0.21739	4.5020	0.2210	1.4582	1.4582	9.99022	9.53425	10.555	10.555	10.555	10.555
1.360	0.97682	0.21721	4.5025	0.2208	1.4584	1.4584	9.99023	9.53426	10.555	10.555	10.555	10.555
1.361	0.97693	0.21703	4.5030	0.2206	1.4586	1.4586	9.99024	9.53427	10.555	10.555	10.555	10.555
1.362	0.97704	0.21685	4.5035	0.2204	1.4588	1.4588	9.99025	9.53428	10.555	10.555	10.555	10.555
1.363	0.97715	0.21667	4.5040	0.2202	1.4590	1.4590	9.99026	9.53429	10.555	10.555	10.555	10.555
1.364	0.97726	0.21649	4.5045	0.2200	1.4592	1.4592	9.99027	9.53430	10.555	10.555	10.555	10.555
1.365	0.97737	0.21631	4.5050	0.2198	1.4594	1.4594	9.99028	9.53431	10.555	10.555	10.555	10.555
1.366	0.97748	0.21613	4.5055	0.2196	1.4596	1.4596	9.99029	9.53432	10.555	10.555	10.555	10.555
1.367	0.97759	0.21595	4.5060	0.2194	1.4598	1.4598	9.99030	9.53433	10.555	10.555	10.555	10.555
1.368	0.97770	0.21577	4.5065	0.2192	1.4600	1.4600	9.99031	9.53434	10.555	10.555	10.555	10.555
1.369	0.97781	0.21559	4.5070	0.2190	1.4602	1.4602	9.99032	9.53435	10.555	10.555	10.555	10.555
1.370	0.97792	0.21541	4.5075	0.2188	1.4604	1.4604	9.99033	9.53436	10.555	10.555	10.555	10.555
1.371	0.97803	0.21523	4.5080	0.2186	1.4606	1.4606	9.99034	9.53437	10.555	10.555	10.555	10.555
1.372	0.97814	0.21505	4.5085	0.2184	1.4608	1.4608	9.99035	9.53438	10.555	10.555	10.555	10.555
1.373	0.97825	0.21487	4.5090	0.2182	1.4610	1.4610	9.99036	9.53439	10.555	10.555	10.555	10.555
1.374	0.97836	0.21469	4.5095	0.2180	1.4612	1.4612	9.99037	9.53440	10.555	10.555	10.555	10.555
1.375	0.97847	0.21451	4.5100	0.2178	1.4614	1.4614	9.99038	9.53441	10.555	10.555	10.555	10.555
1.376	0.97858	0.21433	4.5105	0.2176	1.4616	1.4616	9.99039	9.53442	10.555	10.555	10.555	10.555
1.377	0.97869	0.21415	4.5110	0.2174	1.4618	1.4618	9.99040	9.53443	10.555	10.555	10.555	10.555
1.378	0.97880	0.21397	4.5115	0.2172	1.4620	1.4620	9.99041	9.53444	10.555	10.555	10.555	10.555
1.379	0.97891	0.21379	4.5120	0.2170	1.4622	1.4622	9.99042	9.53445	10.555	10.555	10.555	10.555
1.380	0.97902	0.21361	4.5125	0.2168	1.4624	1.4624	9.99043	9.53446	10.555	10.555	10.555	10.555
1.381	0.97913	0.21343	4.5130	0.2166	1.4626	1.4626	9.99044	9.53447	10.555	10.555	10.555	10.555
1.382	0.97924	0.21325	4.5135	0.2164	1.4628	1.4628	9.99045	9.53448	10.555	10.555	10.555	10.555
1.383	0.97935	0.21307	4.5140	0.2162	1.4630	1.4630	9.99046	9.53449	10.555	10.555	10.555	10.555
1.384	0.97946	0.21289	4.5145	0.2160	1.4632	1.4632	9.99047	9.53450	10.555	10.555	10.555	10.555
1.385	0.97957	0.21271	4.5150	0.2158	1.4634	1.4634	9.99048	9.53451	10.555	10.555	10.555	10.555
1.386	0.97968	0.21253	4.5155	0.2156	1.4636	1.4636	9.99049	9.53452	10.555	10.555	10.555	10.555
1.387	0.97979	0.21235	4.5160	0.2154	1.4638	1.4638	9.99050	9.53453	10.555	10.555	10.555	10.555
1.388	0.97990	0.21217	4.5165	0.2152	1.4640	1.4640	9.99051	9.53454	10.555	10.555	10.555	10.555
1.389	0.98001	0.21199	4.5170	0.2150	1.4642	1.4642	9.99052	9.53455	10.555	10.555	10.555	10.555
1.390	0.98012	0.21181	4.5175	0.2148	1.4644	1.4644	9.99053	9.53456	10.555	10.555	10.555	10.555
1.391	0.98023	0.21163	4.5180	0.2146	1.4646	1.4646	9.99054	9.53457	10.555	10.555	10.555	10.555
1.392	0.98034	0.21145	4.5185	0.2144	1.4648	1.4648	9.99055	9.53458	10.555	10.555	10.555	10.555
1.393	0.98045	0.21127	4.5190	0.2142	1.4650	1.4650	9.99056	9.53459	10.555	10.555	10.555	10.555
1.394	0.98056	0.21109	4.5195	0.2140	1.4652	1.4652	9.99057	9.53460	10.555	10.555	10.555	10.555
1.395	0.98067	0.21091	4.5200	0.2138	1.4654	1.4654	9.99058	9.53461	10.555	10.555	10.555	10.555
1.396	0.98078	0.21073	4.5205	0.2136	1.4656	1.4656	9.99059	9.53462	10.555	10.555	10.555	10.555
1.397	0.98089	0.21055	4.5210	0.2134	1.4658	1.4658	9.99060	9.53463	10.555	10.555	10.555	10.555
1.398	0.98100	0.21037	4.5215	0.2132	1.4660	1.4660	9.99061	9.53464	10.555	10.555	10.555	10.555
1.399	0.98111	0.21019	4.5220	0.2130	1.4662	1.4662	9.99062	9.53465	10.555	10.555	10.555	10.555
1.400	0.98122	0.21001	4.5225	0.2128	1.4664	1.4664	9.99063	9.53466	10.555	10.555	10.555	10.555

Circular Functions.

x	$\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	x
1.390	0.98545	17.0	0.16907	08.3	0.91893	7.5	0.23036	23.28	80 12 50.73
.001	0.98504	16.9	0.16828	08.0	0.91873	7.4	0.23081	23.34	80 10 16.09
.002	0.98461	16.8	0.16749	07.6	0.91853	7.4	0.23126	23.41	80 08 13.55
.003	0.98418	16.7	0.16671	07.3	0.91833	7.4	0.23171	23.47	80 06 40.52
.004	0.98374	16.6	0.16592	07.0	0.91813	7.3	0.23217	23.53	80 04 38.29
1.405	0.98129	16.5	0.16301	06.6	0.91600	7.3	0.23258	23.68	80 30 03.05
.005	0.98115	16.4	0.16305	06.6	0.91608	7.2	0.23168	23.61	80 33 58.32
.006	0.98102	16.4	0.16306	06.7	0.91615	7.2	0.23149	23.63	80 34 51.58
.008	0.98078	16.4	0.16288	06.7	0.91622	7.1	0.23172	23.64	80 34 50.86
.009	0.98064	16.4	0.16289	06.7	0.91631	7.1	0.23167	23.64	80 34 47.13
1.410	0.98010	16.0	0.16010	06.2	0.91410	7.0	0.23140	23.68	80 47 13.48
.011	0.98075	15.0	0.15912	05.7	0.91411	7.0	0.23172	23.63	80 50 39.04
.012	0.98012	15.8	0.15813	05.7	0.91410	7.0	0.23160	23.61	80 51 05.00
.013	0.97968	15.7	0.15714	05.8	0.91457	6.9	0.23169	23.62	80 52 14.17
.014	0.97923	15.6	0.15615	05.8	0.91454	6.9	0.23155	23.67	80 00 38.41
1.415	0.97880	15.5	0.15517	05.8	0.91471	6.8	0.23150	23.68	80 01 21.20
.016	0.97864	15.4	0.15485	05.8	0.91478	6.8	0.23160	23.63	80 02 50.07
.017	0.97840	15.3	0.15439	05.8	0.91484	6.7	0.23151	23.62	80 04 17.41
.018	0.97815	15.2	0.15400	05.8	0.91491	6.7	0.23142	23.60	80 04 43.50
.019	0.97800	15.1	0.15381	05.9	0.91498	6.7	0.23139	23.61	80 05 09.20
1.420	0.97806	15.0	0.15303	05.9	0.91501	6.6	0.23170	23.68	80 06 36.02
.021	0.97880	14.9	0.15224	05.9	0.91511	6.6	0.23172	23.63	80 08 02.20
.022	0.97905	14.8	0.15185	05.9	0.91517	6.5	0.23169	23.67	80 08 58.86
.023	0.97910	14.7	0.15125	05.9	0.91511	6.5	0.23168	23.67	80 09 54.82
.024	0.97921	14.6	0.15077	05.9	0.91530	6.4	0.23155	23.67	80 10 51.08
1.425	0.97880	14.5	0.14958	05.9	0.91557	6.4	0.23160	23.68	80 12 47.38
.025	0.97954	14.4	0.14849	05.9	0.91563	6.4	0.23161	23.68	80 14 21.01
.026	0.97968	14.3	0.14800	05.9	0.91569	6.4	0.23165	23.69	80 15 21.38
.028	0.97882	14.2	0.14731	05.9	0.91550	6.3	0.23171	23.64	80 16 06.41
.029	0.97866	14.1	0.14682	05.9	0.91562	6.2	0.23161	23.64	80 16 42.41
1.430	0.97800	14.0	0.14603	05.9	0.91568	6.2	0.23170	23.64	80 18 08.07
.031	0.97924	13.9	0.14544	05.9	0.91571	6.1	0.23168	23.69	80 19 24.04
.032	0.97938	13.8	0.14505	05.9	0.91579	6.1	0.23163	23.69	80 20 51.20
.033	0.97951	13.7	0.14466	05.9	0.91585	6.0	0.23178	23.64	80 20 17.47
.034	0.97966	13.6	0.14427	05.9	0.91581	6.0	0.23172	23.65	80 20 43.21
1.435	0.97970	13.5	0.14348	05.9	0.91595	5.9	0.23193	23.78	82 13 40.00
.035	0.98003	13.4	0.14290	05.9	0.91591	5.9	0.23189	23.75	82 16 36.26
.036	0.98016	13.3	0.14249	05.9	0.91590	5.8	0.23185	23.67	82 20 02.53
.037	0.98020	13.2	0.14211	05.9	0.91591	5.8	0.23180	23.64	82 23 38.29
.038	0.98023	13.1	0.14172	05.9	0.91592	5.8	0.23178	23.64	82 26 35.00
1.440	0.98046	13.0	0.14092	05.9	0.91607	5.7	0.23195	23.80	82 29 21.43
.041	0.98150	12.9	0.13983	05.9	0.91611	5.7	0.23191	23.82	82 31 47.59
.042	0.98172	12.8	0.13944	05.9	0.91609	5.6	0.23190	23.84	82 32 13.46
.043	0.98188	12.7	0.13915	05.9	0.91611	5.6	0.23191	23.80	82 34 40.12
.044	0.98197	12.6	0.13890	05.9	0.91610	5.5	0.23191	23.82	82 34 06.48
1.445	0.98210	12.5	0.13806	05.9	0.91605	5.5	0.23182	23.81	82 37 21.68
.046	0.98222	12.4	0.13747	05.9	0.91601	5.4	0.23197	23.84	82 39 38.01
.047	0.98235	12.3	0.13698	05.9	0.91600	5.4	0.23190	23.80	82 41 45.17
.048	0.98247	12.2	0.13649	05.9	0.91597	5.4	0.23189	23.80	82 42 13.46
.049	0.98250	12.1	0.13610	05.9	0.91597	5.3	0.23190	23.81	82 42 34.41
1.450	0.98271	12.0	0.13530	05.9	0.91588	5.3	0.23180	23.78	83 01 41.07
x	$-\sin x$	$= F_1'$	$\cos x$	$= F_2'$	$\log \sin x$	$= F_3'$	$\log \cos x$	$= F_4'$	x

SMITHSONIAN TABLES

Circular Functions.

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\cot \theta$	$\sec \theta$	$\csc \theta$	$\log \sin \theta$	$\log \cos \theta$	$\log \tan \theta$	$\log \cot \theta$	$\log \sec \theta$	$\log \csc \theta$
1.450	0.99271	1.1	0.12050	93.3	9.99271	5.3	9.99271	357.8	81.04	43.07		
1.451	0.99281	1.1	0.11951	93.3	9.99281	5.2	9.99281	360.8	81.08	43.21		
1.452	0.99291	1.1	0.11852	93.3	9.99291	5.2	9.99291	363.8	81.11	43.35		
1.453	0.99301	1.1	0.11753	93.3	9.99301	5.1	9.99301	366.8	81.15	43.49		
1.454	0.99311	1.1	0.11653	93.3	9.99311	5.1	9.99311	369.8	81.18	43.63		
1.455	0.99320	1.1	0.11554	93.3	9.99320	5.1	9.99320	372.8	81.21	43.77		
1.456	0.99329	1.1	0.11454	93.3	9.99329	5.0	9.99329	375.8	81.25	43.91		
1.457	0.99338	1.1	0.11355	93.3	9.99338	5.0	9.99338	378.8	81.28	44.05		
1.458	0.99347	1.1	0.11256	93.3	9.99347	4.9	9.99347	381.8	81.32	44.19		
1.459	0.99356	1.1	0.11156	93.3	9.99356	4.9	9.99356	384.8	81.35	44.33		
1.460	0.99365	1.1	0.11057	93.3	9.99365	4.8	9.99365	387.8	81.39	44.47		
1.461	0.99374	1.1	0.10958	93.3	9.99374	4.8	9.99374	390.8	81.42	44.61		
1.462	0.99383	1.1	0.10859	93.3	9.99383	4.7	9.99383	393.8	81.45	44.75		
1.463	0.99392	1.1	0.10760	93.3	9.99392	4.7	9.99392	396.8	81.49	44.89		
1.464	0.99401	1.1	0.10661	93.3	9.99401	4.7	9.99401	399.8	81.52	45.03		
1.465	0.99410	1.1	0.10562	93.3	9.99410	4.6	9.99410	402.8	81.56	45.17		
1.466	0.99419	1.1	0.10463	93.3	9.99419	4.6	9.99419	405.8	81.59	45.31		
1.467	0.99428	1.1	0.10364	93.3	9.99428	4.5	9.99428	408.8	81.63	45.45		
1.468	0.99437	1.1	0.10265	93.3	9.99437	4.5	9.99437	411.8	81.66	45.59		
1.469	0.99446	1.1	0.10166	93.3	9.99446	4.4	9.99446	414.8	81.70	45.73		
1.470	0.99455	1.1	0.10067	93.3	9.99455	4.4	9.99455	417.8	81.73	45.87		
1.471	0.99464	1.1	0.09968	93.3	9.99464	4.3	9.99464	420.8	81.77	46.01		
1.472	0.99473	1.1	0.09869	93.3	9.99473	4.3	9.99473	423.8	81.80	46.15		
1.473	0.99482	1.1	0.09770	93.3	9.99482	4.3	9.99482	426.8	81.84	46.29		
1.474	0.99491	1.1	0.09671	93.3	9.99491	4.2	9.99491	429.8	81.87	46.43		
1.475	0.99500	1.1	0.09572	93.3	9.99500	4.2	9.99500	432.8	81.91	46.57		
1.476	0.99509	1.1	0.09473	93.3	9.99509	4.1	9.99509	435.8	81.94	46.71		
1.477	0.99518	1.1	0.09374	93.3	9.99518	4.1	9.99518	438.8	81.98	46.85		
1.478	0.99527	1.1	0.09275	93.3	9.99527	4.0	9.99527	441.8	82.01	46.99		
1.479	0.99536	1.1	0.09176	93.3	9.99536	4.0	9.99536	444.8	82.05	47.13		
1.480	0.99545	1.1	0.09077	93.3	9.99545	4.0	9.99545	447.8	82.08	47.27		
1.481	0.99554	1.1	0.08978	93.3	9.99554	3.9	9.99554	450.8	82.12	47.41		
1.482	0.99563	1.1	0.08879	93.3	9.99563	3.9	9.99563	453.8	82.15	47.55		
1.483	0.99572	1.1	0.08780	93.3	9.99572	3.8	9.99572	456.8	82.19	47.69		
1.484	0.99581	1.1	0.08681	93.3	9.99581	3.8	9.99581	459.8	82.22	47.83		
1.485	0.99590	1.1	0.08582	93.3	9.99590	3.7	9.99590	462.8	82.26	47.97		
1.486	0.99599	1.1	0.08483	93.3	9.99599	3.7	9.99599	465.8	82.29	48.11		
1.487	0.99608	1.1	0.08384	93.3	9.99608	3.6	9.99608	468.8	82.33	48.25		
1.488	0.99617	1.1	0.08285	93.3	9.99617	3.6	9.99617	471.8	82.36	48.39		
1.489	0.99626	1.1	0.08186	93.3	9.99626	3.5	9.99626	474.8	82.40	48.53		
1.490	0.99635	1.1	0.08087	93.3	9.99635	3.5	9.99635	477.8	82.43	48.67		
1.491	0.99644	1.1	0.07988	93.3	9.99644	3.5	9.99644	480.8	82.47	48.81		
1.492	0.99653	1.1	0.07889	93.3	9.99653	3.4	9.99653	483.8	82.50	48.95		
1.493	0.99662	1.1	0.07790	93.3	9.99662	3.4	9.99662	486.8	82.54	49.09		
1.494	0.99671	1.1	0.07691	93.3	9.99671	3.3	9.99671	489.8	82.57	49.23		
1.495	0.99680	1.1	0.07592	93.3	9.99680	3.3	9.99680	492.8	82.61	49.37		
1.496	0.99689	1.1	0.07493	93.3	9.99689	3.3	9.99689	495.8	82.64	49.51		
1.497	0.99698	1.1	0.07394	93.3	9.99698	3.2	9.99698	498.8	82.68	49.65		
1.498	0.99707	1.1	0.07295	93.3	9.99707	3.2	9.99707	501.8	82.71	49.79		
1.499	0.99716	1.1	0.07196	93.3	9.99716	3.1	9.99716	504.8	82.75	49.93		
1.500	0.99725	1.1	0.07097	93.3	9.99725	3.1	9.99725	507.8	82.78	50.07		
1.501	0.99734	1.1	0.06998	93.3	9.99734	3.0	9.99734	510.8	82.82	50.21		
1.502	0.99743	1.1	0.06899	93.3	9.99743	3.0	9.99743	513.8	82.85	50.35		
1.503	0.99752	1.1	0.06800	93.3	9.99752	3.0	9.99752	516.8	82.89	50.49		
1.504	0.99761	1.1	0.06701	93.3	9.99761	2.9	9.99761	519.8	82.92	50.63		
1.505	0.99770	1.1	0.06602	93.3	9.99770	2.9	9.99770	522.8	82.96	50.77		
1.506	0.99779	1.1	0.06503	93.3	9.99779	2.9	9.99779	525.8	82.99	50.91		
1.507	0.99788	1.1	0.06404	93.3	9.99788	2.8	9.99788	528.8	83.03	51.05		
1.508	0.99797	1.1	0.06305	93.3	9.99797	2.8	9.99797	531.8	83.06	51.19		
1.509	0.99806	1.1	0.06206	93.3	9.99806	2.8	9.99806	534.8	83.10	51.33		
1.510	0.99815	1.1	0.06107	93.3	9.99815	2.7	9.99815	537.8	83.13	51.47		
1.511	0.99824	1.1	0.06008	93.3	9.99824	2.7	9.99824	540.8	83.17	51.61		
1.512	0.99833	1.1	0.05909	93.3	9.99833	2.7	9.99833	543.8	83.20	51.75		
1.513	0.99842	1.1	0.05810	93.3	9.99842	2.6	9.99842	546.8	83.24	51.89		
1.514	0.99851	1.1	0.05711	93.3	9.99851	2.6	9.99851	549.8	83.27	52.03		
1.515	0.99860	1.1	0.05612	93.3	9.99860	2.6	9.99860	552.8	83.31	52.17		
1.516	0.99869	1.1	0.05513	93.3	9.99869	2.5	9.99869	555.8	83.34	52.31		
1.517	0.99878	1.1	0.05414	93.3	9.99878	2.5	9.99878	558.8	83.38	52.45		
1.518	0.99887	1.1	0.05315	93.3	9.99887	2.5	9.99887	561.8	83.41	52.59		
1.519	0.99896	1.1	0.05216	93.3	9.99896	2.4	9.99896	564.8	83.45	52.73		
1.520	0.99905	1.1	0.05117	93.3	9.99905	2.4	9.99905	567.8	83.48	52.87		
1.521	0.99914	1.1	0.05018	93.3	9.99914	2.4	9.99914	570.8	83.52	53.01		
1.522	0.99923	1.1	0.04919	93.3	9.99923	2.3	9.99923	573.8	83.55	53.15		
1.523	0.99932	1.1	0.04820	93.3	9.99932	2.3	9.99932	576.8	83.59	53.29		
1.524	0.99941	1.1	0.04721	93.3	9.99941	2.3	9.99941	579.8	83.62	53.43		
1.525	0.99950	1.1	0.04622	93.3	9.99950	2.2	9.99950	582.8	83.66	53.57		
1.526	0.99959	1.1	0.04523	93.3	9.99959	2.2	9.99959	585.8	83.69	53.71		
1.527	0.99968	1.1	0.04424	93.3	9.99968	2.2	9.99968	588.8	83.73	53.85		
1.528	0.99977	1.1	0.04325	93.3	9.99977	2.1	9.99977	591.8	83.76	53.99		
1.529	0.99986	1.1	0.04226	93.3	9.99986	2.1	9.99986	594.8	83.80	54.13		
1.530	0.99995	1.1	0.04127	93.3	9.99995	2.1	9.99995	597.8	83.83	54.27		
1.531	1.00004	1.1	0.04028	93.3	1.00004	2.0	1.00004	600.8	83.87	54.41		
1.532	1.00013	1.1	0.03929	93.3	1.00013	2.0	1.00013	603.8	83.90	54.55		
1.533	1.00022	1.1	0.03830	93.3	1.00022	2.0	1.00022	606.8	83.94	54.69		
1.534	1.00031	1.1	0.03731	93.3	1.00031	2.0	1.00031	609.8	83.97	54.83		
1.535	1.00040	1.1	0.03632	93.3	1.00040	2.0	1.00040	612.8	84.01	54.97		
1.536	1.00049	1.1	0.03533	93.3	1.00049	1.9	1.00049	615.8	84.04	55.11		
1.537	1.00058	1.1	0.03434	93.3	1.00058	1.9	1.00058	618.8	84.08	55.25		
1.538	1.00067	1.1	0.03335	93.3	1.00067	1.9	1.00067	621.8	84.11	55.39		
1.539	1.00076	1.1	0.03236	93.3	1.00076	1.8	1.00076	624.8	84.15	55.53		
1.540	1.00085	1.1	0.03137	93.3	1.00085	1.8	1.00085	627.8	84.18	55.67		
1.541	1.00094	1.1	0.03038	93.3	1.00094	1.8	1.00094	630.8	84.22	55.81		
1.542	1.00103	1.1	0.02939	93.3	1.00103	1.7	1.00103	633.8	84.25	55.95		
1.543	1.00112	1.1	0.02840	93.3	1.00112	1.7	1.00112	636.8	84.29	56.09		
1.544	1.00121	1.1	0.02741	93.3	1.00121	1.7	1.00121	639.8	84.32	56.23		
1.545	1.00130	1.1	0.02642	93.3	1.00130	1.6	1.00130</					

Circular Functions

θ	$\sin \theta$	$\cos \theta$	$\sin \theta$	$\cos \theta$	$\log \sin \theta$	$\log \cos \theta$	θ
1.500	0.99749	7.1	0.00251	99.7	0.00000	3.1	8.89999
1.501	0.99750	7.0	0.00250	99.8	0.00001	3.1	8.89998
1.502	0.99751	6.9	0.00249	99.8	0.00002	3.1	8.89997
1.503	0.99752	6.8	0.00248	99.9	0.00003	3.1	8.89996
1.504	0.99753	6.7	0.00247	99.9	0.00004	3.1	8.89995
1.505	0.99754	6.6	0.00246	99.8	0.00005	3.1	8.89994
1.506	0.99755	6.5	0.00245	99.8	0.00006	3.1	8.89993
1.507	0.99756	6.4	0.00244	99.8	0.00007	3.1	8.89992
1.508	0.99757	6.3	0.00243	99.8	0.00008	3.1	8.89991
1.509	0.99758	6.2	0.00242	99.8	0.00009	3.1	8.89990
1.510	0.99759	6.1	0.00241	99.8	0.00010	3.1	8.89989
1.511	0.99760	6.0	0.00240	99.8	0.00011	3.1	8.89988
1.512	0.99761	5.9	0.00239	99.8	0.00012	3.1	8.89987
1.513	0.99762	5.8	0.00238	99.8	0.00013	3.1	8.89986
1.514	0.99763	5.7	0.00237	99.8	0.00014	3.1	8.89985
1.515	0.99764	5.6	0.00236	99.8	0.00015	3.1	8.89984
1.516	0.99765	5.5	0.00235	99.8	0.00016	3.1	8.89983
1.517	0.99766	5.4	0.00234	99.8	0.00017	3.1	8.89982
1.518	0.99767	5.3	0.00233	99.8	0.00018	3.1	8.89981
1.519	0.99768	5.2	0.00232	99.8	0.00019	3.1	8.89980
1.520	0.99769	5.1	0.00231	99.8	0.00020	3.1	8.89979
1.521	0.99770	5.0	0.00230	99.8	0.00021	3.1	8.89978
1.522	0.99771	4.9	0.00229	99.8	0.00022	3.1	8.89977
1.523	0.99772	4.8	0.00228	99.8	0.00023	3.1	8.89976
1.524	0.99773	4.7	0.00227	99.8	0.00024	3.1	8.89975
1.525	0.99774	4.6	0.00226	99.8	0.00025	3.1	8.89974
1.526	0.99775	4.5	0.00225	99.8	0.00026	3.1	8.89973
1.527	0.99776	4.4	0.00224	99.8	0.00027	3.1	8.89972
1.528	0.99777	4.3	0.00223	99.8	0.00028	3.1	8.89971
1.529	0.99778	4.2	0.00222	99.8	0.00029	3.1	8.89970
1.530	0.99779	4.1	0.00221	99.8	0.00030	3.1	8.89969
1.531	0.99780	4.0	0.00220	99.8	0.00031	3.1	8.89968
1.532	0.99781	3.9	0.00219	99.8	0.00032	3.1	8.89967
1.533	0.99782	3.8	0.00218	99.8	0.00033	3.1	8.89966
1.534	0.99783	3.7	0.00217	99.8	0.00034	3.1	8.89965
1.535	0.99784	3.6	0.00216	99.8	0.00035	3.1	8.89964
1.536	0.99785	3.5	0.00215	99.8	0.00036	3.1	8.89963
1.537	0.99786	3.4	0.00214	99.8	0.00037	3.1	8.89962
1.538	0.99787	3.3	0.00213	99.8	0.00038	3.1	8.89961
1.539	0.99788	3.2	0.00212	99.8	0.00039	3.1	8.89960
1.540	0.99789	3.1	0.00211	99.8	0.00040	3.1	8.89959
1.541	0.99790	3.0	0.00210	99.8	0.00041	3.1	8.89958
1.542	0.99791	2.9	0.00209	99.8	0.00042	3.1	8.89957
1.543	0.99792	2.8	0.00208	99.8	0.00043	3.1	8.89956
1.544	0.99793	2.7	0.00207	99.8	0.00044	3.1	8.89955
1.545	0.99794	2.6	0.00206	99.8	0.00045	3.1	8.89954
1.546	0.99795	2.5	0.00205	99.8	0.00046	3.1	8.89953
1.547	0.99796	2.4	0.00204	99.8	0.00047	3.1	8.89952
1.548	0.99797	2.3	0.00203	99.8	0.00048	3.1	8.89951
1.549	0.99798	2.2	0.00202	99.8	0.00049	3.1	8.89950
1.550	0.99799	2.1	0.00201	99.8	0.00050	3.1	8.89949
θ	$\sin \theta$	$\cos \theta$	$\sin \theta$	$\cos \theta$	$\log \sin \theta$	$\log \cos \theta$	θ

Circular Functions.

u	$\sin u$	$= F_1'$	$\cos u$	$= F_2'$	$\log \sin u$	$= F_3'$	$\log \cos u$	$= F_4'$	u
1.399	0.99978	2.1	+0.02079	100.0	9.99991	0.0	8.31795	2088.0	88° 38' 30.45
.351	0.99980	2.0	+0.01880		9.99991	0.0	20.556	2103.5	88 31 56.71
.554	0.99982	1.9	+0.01880		9.99992	0.8	27.105	2310.3	88 35 22.98
.553	0.99981	1.8	+0.01880		9.99993	0.8	29.931	2410.1	88 38 49.21
.554	0.99980	1.7	+0.01880		9.99994	0.7	22.519	2595.4	89 02 15.51
1.553	0.99978	1.6	+0.01553	100.0	9.99995	0.7	8.10554	2740.1	89 05 41.77
.559	0.99989	1.5	+0.01380		9.99995	0.6	17.011	2934.0	89 09 08.04
.557	0.99990	1.4	+0.01380		9.99996	0.6	13.675	3147.7	89 12 34.30
.558	0.99992	1.3	+0.01380		9.99996	0.5	10.707	3393.7	89 16 00.57
.559	0.99993	1.2	+0.01380		9.99997	0.5	07.174	3681.4	89 19 26.83
1.550	0.99991	1.1	+0.01050	100.0	9.99997	0.5	8.03327	4022.5	89 22 53.10
.560	0.99995	1.0	+0.01380		9.99998	0.4	7.59105	4433.1	89 26 19.36
.560	0.99996	0.9	+0.01380		9.99998	0.4	5.1130	4907.1	89 29 45.63
.563	0.99997	0.8	+0.01380		9.99999	0.3	3.89189	5570.4	89 33 11.89
.564	0.99998	0.7	+0.01380		9.99999	0.3	3.1227	6390.0	89 36 38.16
1.565	0.99998	0.6	+0.00580	100.0	9.99999	0.3	7.76515	7498.5	89 40 04.42
.566	0.99999	0.5	+0.01380		9.99999	0.2	1.8091	9054.7	89 43 30.69
.567	0.99999	0.4	+0.01380		9.99999	0.2	57136	11431.8	89 46 56.95
.568	1.00000	0.3	+0.01380		9.99999	0.1	4.0150	15530.0	89 50 23.22
.569	1.00000	0.2	+0.01380		9.99999	0.1	25.138	21176.8	89 53 49.48
1.570	1.00000	0.1	+0.00080	100.0	9.99999	0.0	6.00169	54537.4	89 57 15.75
.571	1.00000	0.0	+0.00080		9.99999	0.0	6.30891	21324.5	90 00 42.01
.572	1.00000	0.1	+0.0120		9.99999	0.1	7.08051	31080.7	90 04 08.28
.573	1.00000	0.2	+0.0220		9.99999	0.1	11.115	10707.7	90 07 34.54
.574	0.99999	0.3	+0.0320		9.99999	0.1	5.5955	13595.1	90 11 00.81
1.575	0.99999	0.4	+0.0420	100.0	9.99999	0.2	7.62369	10131.2	90 14 27.07
.576	0.99999	0.5	+0.0520		9.99999	0.2	7.1613	8245.8	90 17 53.33
.577	0.99998	0.6	+0.0620		9.99999	0.3	7.1245	7000.5	90 21 19.60
.578	0.99997	0.7	+0.0720		9.99999	0.3	8.5755	6028.6	90 24 45.81
.579	0.99997	0.8	+0.0820		9.99999	0.4	9.1400	5203.8	90 28 12.13
1.580	0.99996	0.9	+0.0920	100.0	9.99998	0.4	7.66996	4718.6	90 31 38.39
.581	0.99995	1.0	+0.1020		9.99998	0.4	8.00375	4255.1	90 35 04.66
.582	0.99994	1.1	+0.1120		9.99997	0.5	9.0135	3876.2	90 38 30.92
.583	0.99993	1.2	+0.1220		9.99997	0.5	9.8648	3598.5	90 41 57.19
.584	0.99991	1.3	+0.1320		9.99996	0.6	1.20.38	3480.0	90 45 23.45
1.585	0.99990	1.4	+0.0120	100.0	9.99995	0.6	8.15239	3087.4	90 48 49.72
.586	0.99988	1.5	+0.1520		9.99995	0.7	1.8193	2895.0	90 52 15.98
.587	0.99987	1.6	+0.1620		9.99994	0.7	2.8930	2650.0	90 55 42.25
.588	0.99985	1.7	+0.1720		9.99994	0.7	23.900	2524.2	90 59 08.51
.589	0.99983	1.8	+0.1820		9.99993	0.8	26.014	2398.5	91 02 34.78
1.590	0.99982	1.9	+0.0150	100.0	9.99992	0.8	8.28336	2251.2	91 06 01.04
.591	0.99980	2.0	+0.2020		9.99991	0.9	3.0550	2149.3	91 09 27.31
.592	0.99978	2.1	+0.2120		9.99990	0.9	3.2638	2047.9	91 12 53.57
.593	0.99975	2.2	+0.2220		9.99989	1.0	3.1639	1955.0	91 16 19.84
.594	0.99973	2.3	+0.2320		9.99988	1.0	3.6552	1871.3	91 19 46.10
1.595	0.99971	2.4	+0.0220	100.0	9.99987	1.1	8.38581	1791.0	91 23 12.37
.596	0.99968	2.5	+0.2520		9.99986	1.1	4.0142	1722.8	91 26 38.63
.597	0.99966	2.6	+0.2620		9.99985	1.1	4.1831	1657.0	91 30 04.90
.598	0.99963	2.7	+0.2720		9.99984	1.2	4.1457	1598.1	91 33 31.16
.599	0.99960	2.8	+0.2820		9.99983	1.2	4.5025	1532.4	91 36 57.43
1.600	0.99957	2.9	+0.0250	100.0	9.99981	1.3	8.46538	1485.7	91 40 23.69
u	$-\sin u$	$= F_1'$	$\sinh u$	$= F_2'$	$\log \sinh u$	$= F_3'$	$\log \cosh u$	$= F_4'$	u

TABLE IV

THE ASCENDING AND DESCENDING EXPONENTIAL AND
 $\text{Log}_{10}(e^x)$

NOTE.—In Table IV, for x greater than 2.302, the tabulated values of the ascending exponential may sometimes be erroneous to one unit in the last place.

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
0.000	0.000 0000	1.000 000	1.000 0000	0.000	0.000 0000	1.000 000	1.000 0000
.001	.000 04343	.001 001	.000 999	.001	.000 04343	.001 001	.000 999
.002	.000 08686	.002 002	.001 998	.002	.000 08686	.002 002	.001 998
.003	.001 33029	.003 003	.002 997	.003	.001 33029	.003 003	.002 997
.004	.001 71772	.004 004	.003 996	.004	.001 71772	.004 004	.003 996
.005	.002 1715	.005 011	.004 985	.005	.002 1715	.005 011	.004 985
.006	.002 6598	.006 048	.005 966	.006	.002 6598	.006 048	.005 966
.007	.003 1910	.007 075	.006 939	.007	.003 1910	.007 075	.006 939
.008	.003 7541	.008 112	.007 912	.008	.003 7541	.008 112	.007 912
.009	.004 3687	.009 141	.008 885	.009	.004 3687	.009 141	.008 885
.010	.004 9429	.010 169	.009 858	.010	.004 9429	.010 169	.009 858
.011	.005 5772	.011 197	.010 831	.011	.005 5772	.011 197	.010 831
.012	.006 2115	.012 224	.011 804	.012	.006 2115	.012 224	.011 804
.013	.006 8558	.013 252	.012 777	.013	.006 8558	.013 252	.012 777
.014	.007 5001	.014 280	.013 750	.014	.007 5001	.014 280	.013 750
.015	.008 1444	.015 308	.014 723	.015	.008 1444	.015 308	.014 723
.016	.008 7887	.016 336	.015 696	.016	.008 7887	.016 336	.015 696
.017	.009 4330	.017 364	.016 669	.017	.009 4330	.017 364	.016 669
.018	.010 0773	.018 392	.017 642	.018	.010 0773	.018 392	.017 642
.019	.010 7216	.019 420	.018 615	.019	.010 7216	.019 420	.018 615
.020	.011 3659	.020 448	.019 588	.020	.011 3659	.020 448	.019 588
.021	.012 0102	.021 476	.020 561	.021	.012 0102	.021 476	.020 561
.022	.012 6545	.022 504	.021 534	.022	.012 6545	.022 504	.021 534
.023	.013 2988	.023 532	.022 507	.023	.013 2988	.023 532	.022 507
.024	.013 9431	.024 560	.023 480	.024	.013 9431	.024 560	.023 480
.025	.014 5874	.025 588	.024 453	.025	.014 5874	.025 588	.024 453
.026	.015 2317	.026 616	.025 426	.026	.015 2317	.026 616	.025 426
.027	.015 8760	.027 644	.026 399	.027	.015 8760	.027 644	.026 399
.028	.016 5203	.028 672	.027 372	.028	.016 5203	.028 672	.027 372
.029	.017 1646	.029 700	.028 345	.029	.017 1646	.029 700	.028 345
.030	.017 8089	.030 728	.029 318	.030	.017 8089	.030 728	.029 318
.031	.018 4532	.031 756	.030 291	.031	.018 4532	.031 756	.030 291
.032	.019 0975	.032 784	.031 264	.032	.019 0975	.032 784	.031 264
.033	.019 7418	.033 812	.032 237	.033	.019 7418	.033 812	.032 237
.034	.020 3861	.034 840	.033 210	.034	.020 3861	.034 840	.033 210
.035	.021 0304	.035 868	.034 183	.035	.021 0304	.035 868	.034 183
.036	.021 6747	.036 896	.035 156	.036	.021 6747	.036 896	.035 156
.037	.022 3190	.037 924	.036 129	.037	.022 3190	.037 924	.036 129
.038	.022 9633	.038 952	.037 102	.038	.022 9633	.038 952	.037 102
.039	.023 6076	.039 980	.038 075	.039	.023 6076	.039 980	.038 075
.040	.024 2519	.040 108	.039 048	.040	.024 2519	.040 108	.039 048
.041	.024 8962	.041 136	.040 021	.041	.024 8962	.041 136	.040 021
.042	.025 5405	.042 164	.041 000	.042	.025 5405	.042 164	.041 000
.043	.026 1848	.043 192	.042 000	.043	.026 1848	.043 192	.042 000
.044	.026 8291	.044 220	.043 000	.044	.026 8291	.044 220	.043 000
.045	.027 4734	.045 248	.044 000	.045	.027 4734	.045 248	.044 000
.046	.028 1177	.046 276	.045 000	.046	.028 1177	.046 276	.045 000
.047	.028 7620	.047 304	.046 000	.047	.028 7620	.047 304	.046 000
.048	.029 4063	.048 332	.047 000	.048	.029 4063	.048 332	.047 000
.049	.030 0506	.049 360	.048 000	.049	.030 0506	.049 360	.048 000
.050	.030 6949	.050 388	.049 000	.050	.030 6949	.050 388	.049 000
.051	.031 3392	.051 416	.050 000	.051	.031 3392	.051 416	.050 000
.052	.031 9835	.052 444	.051 000	.052	.031 9835	.052 444	.051 000
.053	.032 6278	.053 472	.052 000	.053	.032 6278	.053 472	.052 000
.054	.033 2721	.054 500	.053 000	.054	.033 2721	.054 500	.053 000
.055	.033 9164	.055 528	.054 000	.055	.033 9164	.055 528	.054 000
.056	.034 5607	.056 556	.055 000	.056	.034 5607	.056 556	.055 000
.057	.035 2050	.057 584	.056 000	.057	.035 2050	.057 584	.056 000
.058	.035 8493	.058 612	.057 000	.058	.035 8493	.058 612	.057 000
.059	.036 4936	.059 640	.058 000	.059	.036 4936	.059 640	.058 000
.060	.037 1379	.060 668	.059 000	.060	.037 1379	.060 668	.059 000
.061	.037 7822	.061 696	.060 000	.061	.037 7822	.061 696	.060 000
.062	.038 4265	.062 724	.061 000	.062	.038 4265	.062 724	.061 000
.063	.039 0708	.063 752	.062 000	.063	.039 0708	.063 752	.062 000
.064	.039 7151	.064 780	.063 000	.064	.039 7151	.064 780	.063 000
.065	.040 3594	.065 808	.064 000	.065	.040 3594	.065 808	.064 000
.066	.041 0037	.066 836	.065 000	.066	.041 0037	.066 836	.065 000
.067	.041 6480	.067 864	.066 000	.067	.041 6480	.067 864	.066 000
.068	.042 2923	.068 892	.067 000	.068	.042 2923	.068 892	.067 000
.069	.042 9366	.069 920	.068 000	.069	.042 9366	.069 920	.068 000
.070	.043 5809	.070 948	.069 000	.070	.043 5809	.070 948	.069 000
.071	.044 2252	.071 976	.070 000	.071	.044 2252	.071 976	.070 000
.072	.044 8695	.072 104	.071 000	.072	.044 8695	.072 104	.071 000
.073	.045 5138	.073 132	.072 000	.073	.045 5138	.073 132	.072 000
.074	.046 1581	.074 160	.073 000	.074	.046 1581	.074 160	.073 000
.075	.046 8024	.075 188	.074 000	.075	.046 8024	.075 188	.074 000
.076	.047 4467	.076 216	.075 000	.076	.047 4467	.076 216	.075 000
.077	.048 0910	.077 244	.076 000	.077	.048 0910	.077 244	.076 000
.078	.048 7353	.078 272	.077 000	.078	.048 7353	.078 272	.077 000
.079	.049 3796	.079 300	.078 000	.079	.049 3796	.079 300	.078 000
.080	.050 0239	.080 328	.079 000	.080	.050 0239	.080 328	.079 000
.081	.050 6682	.081 356	.080 000	.081	.050 6682	.081 356	.080 000
.082	.051 3125	.082 384	.081 000	.082	.051 3125	.082 384	.081 000
.083	.051 9568	.083 412	.082 000	.083	.051 9568	.083 412	.082 000
.084	.052 6011	.084 440	.083 000	.084	.052 6011	.084 440	.083 000
.085	.053 2454	.085 468	.084 000	.085	.053 2454	.085 468	.084 000
.086	.053 8897	.086 496	.085 000	.086	.053 8897	.086 496	.085 000
.087	.054 5340	.087 524	.086 000	.087	.054 5340	.087 524	.086 000
.088	.055 1783	.088 552	.087 000	.088	.055 1783	.088 552	.087 000
.089	.055 8226	.089 580	.088 000	.089	.055 8226	.089 580	.088 000
.090	.056 4669	.090 608	.089 000	.090	.056 4669	.090 608	.089 000
.091	.057 1112	.091 636	.090 000	.091	.057 1112	.091 636	.090 000
.092	.057 7555	.092 664	.091 000	.092	.057 7555	.092 664	.091 000
.093	.058 3998	.093 692	.092 000	.093	.058 3998	.093 692	.092 000
.094	.059 0441	.094 720	.093 000	.094	.059 0441	.094 720	.093 000
.095	.059 6884	.095 748	.094 000	.095	.059 6884	.095 748	.094 000
.096	.060 3327	.096 776	.095 000	.096	.060 3327	.096 776	.095 000
.097	.060 9770	.097 804	.096 000	.097	.060 9770	.097 804	.096 000
.098	.061 6213	.098 832	.097 000	.098	.061 6213	.098 832	.097 000
.099	.062 2656	.099 860	.098 000	.099	.062 2656	.099 860	.098 000
.100	.062 9099	.100 888	.099 000	.100	.062 9099	.100 888	.099 000

The Exponential.

n	$\log_e(e^n)$	e^n	e^{-n}	n	$\log_e(e^n)$	e^n	e^{-n}
0.100	0.041 4-91	1.105 171	0.904 8374	0.150	0.065 1442	1.161 834	0.850 7680
0.101	0.041 8807	1.106 477	0.903 9349	0.151	0.065 5795	1.162 997	0.850 8177
0.102	0.042 3500	1.107 203	0.903 0265	0.152	0.066 0148	1.164 160	0.850 8681
0.103	0.042 73-13	1.108 101	0.902 1790	0.153	0.066 4471	1.165 325	0.850 9192
0.104	0.043 1661	1.109 000	0.901 2851	0.154	0.066 8811	1.166 491	0.850 9707
0.105	0.043 6009	1.110 211	0.900 3245	0.155	0.067 3156	1.167 658	0.851 0222
0.106	0.044 0352	1.111 822	0.899 4206	0.156	0.067 7499	1.168 825	0.851 0739
0.107	0.044 4695	1.112 931	0.898 5257	0.157	0.068 1842	1.169 990	0.851 1251
0.108	0.044 9038	1.114 038	0.897 6270	0.158	0.068 6185	1.171 165	0.851 1764
0.109	0.045 3381	1.115 062	0.896 7303	0.159	0.069 0528	1.172 338	0.851 2280
0.110	0.045 7724	1.116 298	0.895 8311	0.160	0.069 4871	1.173 511	0.851 2798
0.111	0.046 2067	1.117 305	0.894 9387	0.161	0.069 9214	1.174 685	0.851 3311
0.112	0.046 6410	1.118 513	0.894 0313	0.162	0.070 3557	1.175 860	0.851 3822
0.113	0.047 0753	1.119 632	0.893 1507	0.163	0.070 7900	1.177 037	0.851 4334
0.114	0.047 5096	1.120 752	0.892 2780	0.164	0.071 2243	1.178 214	0.851 4848
0.115	0.047 9439	1.121 873	0.891 3561	0.165	0.071 6586	1.179 391	0.851 5361
0.116	0.048 3782	1.122 960	0.890 4752	0.166	0.072 0929	1.180 573	0.851 5876
0.117	0.048 8125	1.124 100	0.889 5852	0.167	0.072 5272	1.181 754	0.851 6390
0.118	0.049 2467	1.125 214	0.888 6561	0.168	0.072 9615	1.182 937	0.851 6905
0.119	0.049 6810	1.126 320	0.887 8078	0.169	0.073 3958	1.184 120	0.851 7419
0.120	0.050 1153	1.127 407	0.886 9304	0.170	0.073 8301	1.185 305	0.851 7932
0.121	0.050 5496	1.128 525	0.886 0530	0.171	0.074 2644	1.186 491	0.851 8446
0.122	0.051 0300	1.129 751	0.885 1761	0.172	0.074 6987	1.187 678	0.851 8959
0.123	0.051 4683	1.130 884	0.884 2507	0.173	0.075 1329	1.188 865	0.851 9472
0.124	0.051 9065	1.132 016	0.883 3708	0.174	0.075 5672	1.190 050	0.851 9985
0.125	0.052 3448	1.133 228	0.882 4969	0.175	0.076 0015	1.191 235	0.852 0498
0.126	0.052 7831	1.134 382	0.881 6168	0.176	0.076 4358	1.192 421	0.852 1011
0.127	0.053 2214	1.135 517	0.880 7327	0.177	0.076 8701	1.193 603	0.852 1524
0.128	0.053 6597	1.136 553	0.879 8534	0.178	0.077 3044	1.194 785	0.852 2037
0.129	0.054 0980	1.137 690	0.878 9740	0.179	0.077 7387	1.195 965	0.852 2550
0.130	0.054 5363	1.138 838	0.878 0951	0.180	0.078 1730	1.197 217	0.852 3062
0.131	0.054 9746	1.139 988	0.877 2157	0.181	0.078 6073	1.198 415	0.852 3574
0.132	0.055 4129	1.141 108	0.876 3400	0.182	0.079 0416	1.199 614	0.852 4086
0.133	0.055 8512	1.142 250	0.875 4651	0.183	0.079 4759	1.200 814	0.852 4598
0.134	0.056 2895	1.143 393	0.874 5901	0.184	0.079 9102	1.202 016	0.852 5109
0.135	0.056 7278	1.144 537	0.873 7159	0.185	0.080 3445	1.203 218	0.852 5620
0.136	0.057 1661	1.145 682	0.872 8426	0.186	0.080 7788	1.204 422	0.852 6131
0.137	0.057 6043	1.146 828	0.871 9702	0.187	0.081 2131	1.205 627	0.852 6641
0.138	0.058 0426	1.147 976	0.871 0979	0.188	0.081 6474	1.206 831	0.852 7151
0.139	0.058 4809	1.149 124	0.870 2250	0.189	0.082 0817	1.208 037	0.852 7661
0.140	0.058 9192	1.150 274	0.869 3582	0.190	0.082 5160	1.209 250	0.852 8171
0.141	0.059 3575	1.151 425	0.868 4903	0.191	0.082 9502	1.210 459	0.852 8681
0.142	0.059 7958	1.152 577	0.867 6213	0.192	0.083 3845	1.211 671	0.852 9190
0.143	0.060 2341	1.153 730	0.866 7511	0.193	0.083 8188	1.212 883	0.852 9699
0.144	0.060 6724	1.154 884	0.865 8877	0.194	0.084 2531	1.214 095	0.853 0207
0.145	0.061 1107	1.156 030	0.865 0223	0.195	0.084 6874	1.215 311	0.853 0715
0.146	0.061 5490	1.157 196	0.864 1577	0.196	0.085 1217	1.216 527	0.853 1222
0.147	0.061 9873	1.158 334	0.863 3040	0.197	0.085 5560	1.217 744	0.853 1729
0.148	0.062 4256	1.159 513	0.862 4311	0.198	0.085 9903	1.218 962	0.853 2235
0.149	0.062 8639	1.160 673	0.861 5591	0.199	0.086 4246	1.220 182	0.853 2740
0.150	0.063 3022	1.161 834	0.860 7080	0.200	0.086 8589	1.221 403	0.853 3245
$\log_e(e^n)$	$\log_e(e^n)$	e^n	e^{-n}	$\log_e(e^n)$	$\log_e(e^n)$	e^n	e^{-n}

The Exponential.

x	$\log_e(x^2)$	e^x	e^{-x}	x	$\log_e(x^2)$	e^x	e^{-x}
0.200	0.085 3899	1.221 403	0.818 7308	0.250	0.108 5736	1.284 025	0.778 801
0.201	0.087 2512	1.222 025	0.817 9124	0.251	0.109 9099	1.285 310	0.777 100
0.202	0.089 1275	1.222 648	0.817 0940	0.252	0.111 2422	1.286 595	0.775 399
0.203	0.091 0088	1.223 272	0.816 2756	0.253	0.112 5745	1.287 880	0.773 698
0.204	0.092 8951	1.223 896	0.815 4571	0.254	0.113 9068	1.289 165	0.771 997
0.205	0.094 7864	1.224 520	0.814 6387	0.255	0.115 2391	1.290 450	0.770 296
0.206	0.096 6827	1.225 144	0.813 8202	0.256	0.116 5714	1.291 735	0.768 595
0.207	0.098 5840	1.225 768	0.813 0018	0.257	0.117 9037	1.293 020	0.766 894
0.208	0.100 4903	1.226 392	0.812 1833	0.258	0.119 2360	1.294 305	0.765 193
0.209	0.102 3966	1.227 016	0.811 3648	0.259	0.120 5683	1.295 590	0.763 492
0.210	0.104 3029	1.227 640	0.810 5463	0.260	0.121 9006	1.296 875	0.761 791
0.211	0.106 2092	1.228 264	0.809 7278	0.261	0.123 2329	1.298 160	0.760 090
0.212	0.108 1155	1.228 888	0.808 9093	0.262	0.124 5652	1.299 445	0.758 389
0.213	0.110 0218	1.229 512	0.808 0908	0.263	0.125 8975	1.300 730	0.756 688
0.214	0.111 9281	1.230 136	0.807 2723	0.264	0.127 2298	1.302 015	0.754 987
0.215	0.113 8344	1.230 760	0.806 4538	0.265	0.128 5621	1.303 300	0.753 286
0.216	0.115 7407	1.231 384	0.805 6353	0.266	0.129 8944	1.304 585	0.751 585
0.217	0.117 6470	1.232 008	0.804 8168	0.267	0.131 2267	1.305 870	0.749 884
0.218	0.119 5533	1.232 632	0.804 0000	0.268	0.132 5590	1.307 155	0.748 183
0.219	0.121 4596	1.233 256	0.803 1815	0.269	0.133 8913	1.308 440	0.746 482
0.220	0.123 3659	1.233 880	0.802 3630	0.270	0.135 2236	1.309 725	0.744 781
0.221	0.125 2722	1.234 504	0.801 5445	0.271	0.136 5559	1.311 010	0.743 080
0.222	0.127 1785	1.235 128	0.800 7260	0.272	0.137 8882	1.312 295	0.741 379
0.223	0.129 0848	1.235 752	0.799 9075	0.273	0.139 2205	1.313 580	0.739 678
0.224	0.130 9911	1.236 376	0.799 0890	0.274	0.140 5528	1.314 865	0.737 977
0.225	0.132 8974	1.237 000	0.798 2705	0.275	0.141 8851	1.316 150	0.736 276
0.226	0.134 8037	1.237 624	0.797 4520	0.276	0.143 2174	1.317 435	0.734 575
0.227	0.136 7100	1.238 248	0.796 6335	0.277	0.144 5497	1.318 720	0.732 874
0.228	0.138 6163	1.238 872	0.795 8150	0.278	0.145 8820	1.320 005	0.731 173
0.229	0.140 5226	1.239 496	0.795 0000	0.279	0.147 2143	1.321 290	0.729 472
0.230	0.142 4289	1.240 120	0.794 1815	0.280	0.148 5466	1.322 575	0.727 771
0.231	0.144 3352	1.240 744	0.793 3630	0.281	0.149 8789	1.323 860	0.726 070
0.232	0.146 2415	1.241 368	0.792 5445	0.282	0.151 2112	1.325 145	0.724 369
0.233	0.148 1478	1.241 992	0.791 7260	0.283	0.152 5435	1.326 430	0.722 668
0.234	0.150 0541	1.242 616	0.790 9075	0.284	0.153 8758	1.327 715	0.720 967
0.235	0.151 9604	1.243 240	0.790 0890	0.285	0.155 2081	1.329 000	0.719 266
0.236	0.153 8667	1.243 864	0.789 2705	0.286	0.156 5404	1.330 285	0.717 565
0.237	0.155 7730	1.244 488	0.788 4520	0.287	0.157 8727	1.331 570	0.715 864
0.238	0.157 6793	1.245 112	0.787 6335	0.288	0.159 2050	1.332 855	0.714 163
0.239	0.159 5856	1.245 736	0.786 8150	0.289	0.160 5373	1.334 140	0.712 462
0.240	0.161 4919	1.246 360	0.786 0000	0.290	0.161 8696	1.335 425	0.710 761
0.241	0.163 3982	1.246 984	0.785 1815	0.291	0.163 2019	1.336 710	0.709 060
0.242	0.165 3045	1.247 608	0.784 3630	0.292	0.164 5342	1.338 000	0.707 359
0.243	0.167 2108	1.248 232	0.783 5445	0.293	0.165 8665	1.339 285	0.705 658
0.244	0.169 1171	1.248 856	0.782 7260	0.294	0.167 1988	1.340 570	0.703 957
0.245	0.171 0234	1.249 480	0.781 9075	0.295	0.168 5311	1.341 855	0.702 256
0.246	0.172 9297	1.250 104	0.781 0890	0.296	0.169 8634	1.343 140	0.700 555
0.247	0.174 8360	1.250 728	0.780 2705	0.297	0.171 1957	1.344 425	0.698 854
0.248	0.176 7423	1.251 352	0.779 4520	0.298	0.172 5280	1.345 710	0.697 153
0.249	0.178 6486	1.251 976	0.778 6335	0.299	0.173 8603	1.347 000	0.695 452
0.250	0.180 5549	1.252 600	0.777 8150	0.300	0.175 1926	1.348 285	0.693 751
0.251	0.182 4612	1.253 224	0.777 0000	0.301	0.176 5249	1.349 570	0.692 050
0.252	0.184 3675	1.253 848	0.776 1815	0.302	0.177 8572	1.350 855	0.690 349
0.253	0.186 2738	1.254 472	0.775 3630	0.303	0.179 1895	1.352 140	0.688 648
0.254	0.188 1801	1.255 096	0.774 5445	0.304	0.180 5218	1.353 425	0.686 947
0.255	0.190 0864	1.255 720	0.773 7260	0.305	0.181 8541	1.354 710	0.685 246
0.256	0.191 9927	1.256 344	0.772 9075	0.306	0.183 1864	1.356 000	0.683 545
0.257	0.193 8990	1.256 968	0.772 0890	0.307	0.184 5187	1.357 285	0.681 844
0.258	0.195 8053	1.257 592	0.771 2705	0.308	0.185 8510	1.358 570	0.680 143
0.259	0.197 7116	1.258 216	0.770 4520	0.309	0.187 1833	1.359 855	0.678 442
0.260	0.199 6179	1.258 840	0.769 6335	0.310	0.188 5156	1.361 140	0.676 741
0.261	0.201 5242	1.259 464	0.768 8150	0.311	0.189 8479	1.362 425	0.675 040
0.262	0.203 4305	1.260 088	0.768 0000	0.312	0.191 1802	1.363 710	0.673 339
0.263	0.205 3368	1.260 712	0.767 1815	0.313	0.192 5125	1.365 000	0.671 638
0.264	0.207 2431	1.261 336	0.766 3630	0.314	0.193 8448	1.366 285	0.669 937
0.265	0.209 1494	1.261 960	0.765 5445	0.315	0.195 1771	1.367 570	0.668 236
0.266	0.211 0557	1.262 584	0.764 7260	0.316	0.196 5094	1.368 855	0.666 535
0.267	0.212 9620	1.263 208	0.763 9075	0.317	0.197 8417	1.370 140	0.664 834
0.268	0.214 8683	1.263 832	0.763 0890	0.318	0.199 1740	1.371 425	0.663 133
0.269	0.216 7746	1.264 456	0.762 2705	0.319	0.200 5063	1.372 710	0.661 432
0.270	0.218 6809	1.265 080	0.761 4520	0.320	0.201 8386	1.374 000	0.659 731
0.271	0.220 5872	1.265 704	0.760 6335	0.321	0.203 1709	1.375 285	0.658 030
0.272	0.222 4935	1.266 328	0.759 8150	0.322	0.204 5032	1.376 570	0.656 329
0.273	0.224 3998	1.266 952	0.759 0000	0.323	0.205 8355	1.377 855	0.654 628
0.274	0.226 3061	1.267 576	0.758 1815	0.324	0.207 1678	1.379 140	0.652 927
0.275	0.228 2124	1.268 200	0.757 3630	0.325	0.208 5001	1.380 425	0.651 226
0.276	0.230 1187	1.268 824	0.756 5445	0.326	0.209 8324	1.381 710	0.649 525
0.277	0.232 0250	1.269 448	0.755 7260	0.327	0.211 1647	1.383 000	0.647 824
0.278	0.233 9313	1.270 072	0.754 9075	0.328	0.212 4970	1.384 285	0.646 123
0.279	0.235 8376	1.270 696	0.754 0890	0.329	0.213 8293	1.385 570	0.644 422
0.280	0.237 7439	1.271 320	0.753 2705	0.330	0.215 1616	1.386 855	0.642 721
0.281	0.239 6502	1.271 944	0.752 4520	0.331	0.216 4939	1.388 140	0.641 020
0.282	0.241 5565	1.272 568	0.751 6335	0.332	0.217 8262	1.389 425	0.639 319
0.283	0.243 4628	1.273 192	0.750 8150	0.333	0.219 1585	1.390 710	0.637 618
0.284	0.245 3691	1.273 816	0.750 0000	0.334	0.220 4908	1.392 000	0.635 917
0.285	0.247 2754	1.274 440	0.749 1815	0.335	0.221 8231	1.393 285	0.634 216
0.286	0.249 1817	1.275 064	0.748 3630	0.336	0.223 1554	1.394 570	0.632 515
0.287	0.251 0880	1.275 688	0.747 5445	0.337	0.224 4877	1.395 855	0.630 814
0.288	0.252 9943	1.276 312	0.746 7260	0.338	0.225 8200	1.397 140	0.629 113
0.289	0.254 9006	1.276 936	0.745 9075	0.339	0.227 1523	1.398 425	0.627 412
0.290	0.256 8069	1.277 560	0.745 0890	0.340	0.228 4846	1.399 710	0.625 711
0.291	0.258 7132	1.278 184	0.744 2705	0.341	0.229 8169	1.401 000	0.624 010
0.292	0.260 6195	1.278 808	0.743 4520	0.342	0.231 1492	1.402 285	0.622 309
0.293	0.262 5258	1.279 432	0.742 6335	0.343	0.232 4815	1.403 570	0.620 608
0.294	0.264 4321	1.280 056	0.741 8150	0.344	0.233 8138	1.404 855	0.618 907
0.295	0.266 3384	1.280 680	0.741 0000	0.345	0.235 1461	1.406 140	0.617 206
0.296	0.268 2447	1.281 304	0.740 1815	0.346	0.236 4784	1.407 425	0.615 505
0.297	0.270 1510	1.281 928	0.739 3630	0.347	0.237 8107	1.408 710	0.613 804
0.298	0.272 0573	1.282 552	0.738 5445	0.348	0.239 1430	1.410 000	0.612 103
0.299	0.273 9636	1.283 176	0.737 7260	0.349	0.240 4753	1.411 285	0.610 402
0.300	0.275 8699	1.283 800	0.736 9075	0.350	0.241 8076	1.412 570	0.608 701

The Exponential.

u	$\log_{10}(e^u)$	e^u	e^{-u}	u	$\log_{10}(e^u)$	e^u	e^{-u}
0.300	0.130 2883	1.340 859	0.740 8182	0.390	0.132 0031	1.459 078	0.704 6881
.301	.130 7226	.351 290	.740 0778	.351	.132 4374	.420 487	.703 0838
.302	.131 1569	.352 561	.739 3381	.352	.132 8717	.421 009	.703 2801
.303	.131 5912	.353 914	.738 5991	.353	.133 3060	.423 311	.702 5772
.304	.131 0255	.355 269	.737 8609	.354	.133 7403	.424 735	.701 8750
0.305	0.132 4598	1.365 625	0.737 1234	0.355	0.134 1745	1.426 181	0.701 1734
.306	.132 8941	.357 082	.736 3856	.356	.134 6088	.427 608	.700 4720
.307	.133 3284	.359 341	.735 6506	.357	.135 0431	.429 039	.699 7725
.308	.133 7627	.360 701	.734 9153	.358	.135 4774	.430 466	.699 0731
.309	.134 1970	.362 062	.734 1808	.359	.135 9117	.431 897	.698 3744
0.310	0.134 6313	1.363 425	0.733 4470	0.360	0.136 3460	1.433 339	0.697 6761
.311	.135 0656	.364 789	.732 7139	.361	.136 7803	.434 763	.696 9760
.312	.135 4999	.366 155	.731 9815	.362	.137 2146	.436 199	.696 2782
.313	.135 9342	.367 522	.731 2490	.363	.137 6489	.437 636	.695 5814
.314	.136 3685	.368 890	.730 5190	.364	.138 0832	.439 070	.694 8812
0.315	0.136 8028	1.370 259	0.729 7889	0.365	0.138 5175	1.440 514	0.694 1907
.316	.137 2371	.371 630	.729 0595	.366	.138 9518	.441 955	.693 5028
.317	.137 6714	.373 003	.728 3305	.367	.139 3861	.443 398	.692 8096
.318	.138 1056	.374 376	.727 6028	.368	.139 8204	.444 839	.692 1172
.319	.138 5399	.375 751	.726 8755	.369	.140 2547	.446 288	.691 4212
0.320	0.138 9742	1.377 128	0.726 1490	0.370	0.140 6890	1.447 735	0.690 7343
.321	.139 4085	.378 506	.725 4233	.371	.141 1233	.449 181	.690 0439
.322	.139 8428	.379 885	.724 6982	.372	.141 5575	.450 633	.689 3542
.323	.140 2771	.381 265	.723 9730	.373	.141 9918	.452 084	.688 6652
.324	.140 7114	.382 647	.723 2502	.374	.142 4261	.453 537	.687 9769
0.325	0.141 1457	1.384 031	0.722 5274	0.375	0.142 8604	1.454 991	0.687 2893
.326	.141 5800	.385 415	.721 8052	.376	.143 2947	.456 447	.686 6023
.327	.142 0143	.386 801	.721 0837	.377	.143 7290	.457 904	.685 9161
.328	.142 4486	.388 189	.720 3630	.378	.144 1633	.459 363	.685 2305
.329	.142 8829	.389 578	.719 6430	.379	.144 5976	.460 823	.684 5456
0.330	0.143 3172	1.390 968	0.718 9237	0.380	0.145 0319	1.462 285	0.683 8614
.331	.143 7515	.392 360	.718 2052	.381	.145 4662	.463 748	.683 1779
.332	.144 1858	.393 753	.717 4873	.382	.145 9005	.465 212	.682 4951
.333	.144 6201	.395 147	.716 7702	.383	.146 3348	.466 678	.681 8129
.334	.145 0544	.396 543	.716 0538	.384	.146 7691	.468 145	.681 1314
0.335	0.145 4887	1.397 940	0.715 3381	0.385	0.147 2034	1.469 614	0.680 4506
.336	.145 9229	.399 339	.714 6215	.386	.147 6377	.471 085	.679 7705
.337	.146 3572	.400 739	.713 9058	.387	.148 0720	.472 559	.679 0911
.338	.146 7915	.402 141	.713 1903	.388	.148 5063	.474 030	.678 4123
.339	.147 2258	.403 543	.712 4754	.389	.148 9406	.475 505	.677 7343
0.340	0.147 6601	1.404 948	0.711 7703	0.390	0.149 3749	1.476 981	0.677 0569
.341	.148 0944	.406 353	.711 0590	.391	.149 8091	.478 459	.676 3802
.342	.148 5287	.407 760	.710 3482	.392	.150 2434	.479 938	.675 7051
.343	.148 9630	.409 169	.709 6382	.393	.150 6777	.481 418	.675 0317
.344	.149 3973	.410 579	.708 9289	.394	.151 1120	.482 891	.674 3541
0.345	0.149 8316	1.411 990	0.708 2204	0.395	0.151 5463	1.484 381	0.673 6800
.346	.150 2659	.413 403	.707 5125	.396	.151 9806	.485 859	.673 0077
.347	.150 7002	.414 817	.706 8053	.397	.152 4149	.487 339	.672 3340
.348	.151 1345	.416 232	.706 0980	.398	.152 8492	.488 816	.671 6600
.349	.151 5688	.417 649	.705 3921	.399	.153 2835	.490 294	.670 9897
0.350	0.152 0031	1.419 068	0.704 6881	0.400	0.153 7178	1.491 825	0.670 3200
$\log_{10}(e^u)$	$\log_{10}(e^u)$	e^u	e^{-u}	$\log_{10}(e^u)$	$\log_{10}(e^u)$	e^u	e^{-u}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
0.000	0.434 2945	1.000 000	0.999 999	0.430	0.895 4345	1.398 112	0.697 4282
0.001	0.434 2945	1.000 000	0.999 999	0.431	0.895 8688	1.399 513	0.696 9988
0.002	0.434 2945	1.000 000	0.999 999	0.432	0.896 3031	1.400 914	0.696 5694
0.003	0.434 2945	1.000 000	0.999 999	0.433	0.896 7374	1.402 315	0.696 1400
0.004	0.434 2945	1.000 000	0.999 999	0.434	0.897 1717	1.403 716	0.695 7106
0.005	0.434 2945	1.000 000	0.999 999	0.435	0.897 6060	1.405 117	0.695 2812
0.006	0.434 2945	1.000 000	0.999 999	0.436	0.898 0403	1.406 518	0.694 8518
0.007	0.434 2945	1.000 000	0.999 999	0.437	0.898 4746	1.407 919	0.694 4224
0.008	0.434 2945	1.000 000	0.999 999	0.438	0.898 9089	1.409 320	0.693 9930
0.009	0.434 2945	1.000 000	0.999 999	0.439	0.899 3432	1.410 721	0.693 5636
0.010	0.434 2945	1.000 000	0.999 999	0.440	0.899 7775	1.412 122	0.693 1342
0.011	0.434 2945	1.000 000	0.999 999	0.441	0.900 2118	1.413 523	0.692 7048
0.012	0.434 2945	1.000 000	0.999 999	0.442	0.900 6461	1.414 924	0.692 2754
0.013	0.434 2945	1.000 000	0.999 999	0.443	0.901 0804	1.416 325	0.691 8460
0.014	0.434 2945	1.000 000	0.999 999	0.444	0.901 5147	1.417 726	0.691 4166
0.015	0.434 2945	1.000 000	0.999 999	0.445	0.901 9490	1.419 127	0.690 9872
0.016	0.434 2945	1.000 000	0.999 999	0.446	0.902 3833	1.420 528	0.690 5578
0.017	0.434 2945	1.000 000	0.999 999	0.447	0.902 8176	1.421 929	0.690 1284
0.018	0.434 2945	1.000 000	0.999 999	0.448	0.903 2519	1.423 330	0.689 6990
0.019	0.434 2945	1.000 000	0.999 999	0.449	0.903 6862	1.424 731	0.689 2696
0.020	0.434 2945	1.000 000	0.999 999	0.450	0.904 1205	1.426 132	0.688 8402
0.021	0.434 2945	1.000 000	0.999 999	0.451	0.904 5548	1.427 533	0.688 4108
0.022	0.434 2945	1.000 000	0.999 999	0.452	0.904 9891	1.428 934	0.687 9814
0.023	0.434 2945	1.000 000	0.999 999	0.453	0.905 4234	1.430 335	0.687 5520
0.024	0.434 2945	1.000 000	0.999 999	0.454	0.905 8577	1.431 736	0.687 1226
0.025	0.434 2945	1.000 000	0.999 999	0.455	0.906 2920	1.433 137	0.686 6932
0.026	0.434 2945	1.000 000	0.999 999	0.456	0.906 7263	1.434 538	0.686 2638
0.027	0.434 2945	1.000 000	0.999 999	0.457	0.907 1606	1.435 939	0.685 8344
0.028	0.434 2945	1.000 000	0.999 999	0.458	0.907 5949	1.437 340	0.685 4050
0.029	0.434 2945	1.000 000	0.999 999	0.459	0.908 0292	1.438 741	0.684 9756
0.030	0.434 2945	1.000 000	0.999 999	0.460	0.908 4635	1.440 142	0.684 5462
0.031	0.434 2945	1.000 000	0.999 999	0.461	0.908 8978	1.441 543	0.684 1168
0.032	0.434 2945	1.000 000	0.999 999	0.462	0.909 3321	1.442 944	0.683 6874
0.033	0.434 2945	1.000 000	0.999 999	0.463	0.909 7664	1.444 345	0.683 2580
0.034	0.434 2945	1.000 000	0.999 999	0.464	0.910 2007	1.445 746	0.682 8286
0.035	0.434 2945	1.000 000	0.999 999	0.465	0.910 6350	1.447 147	0.682 3992
0.036	0.434 2945	1.000 000	0.999 999	0.466	0.911 0693	1.448 548	0.681 9698
0.037	0.434 2945	1.000 000	0.999 999	0.467	0.911 5036	1.449 949	0.681 5404
0.038	0.434 2945	1.000 000	0.999 999	0.468	0.911 9379	1.451 350	0.681 1110
0.039	0.434 2945	1.000 000	0.999 999	0.469	0.912 3722	1.452 751	0.680 6816
0.040	0.434 2945	1.000 000	0.999 999	0.470	0.912 8065	1.454 152	0.680 2522
0.041	0.434 2945	1.000 000	0.999 999	0.471	0.913 2408	1.455 553	0.679 8228
0.042	0.434 2945	1.000 000	0.999 999	0.472	0.913 6751	1.456 954	0.679 3934
0.043	0.434 2945	1.000 000	0.999 999	0.473	0.914 1094	1.458 355	0.678 9640
0.044	0.434 2945	1.000 000	0.999 999	0.474	0.914 5437	1.459 756	0.678 5346
0.045	0.434 2945	1.000 000	0.999 999	0.475	0.914 9780	1.461 157	0.678 1052
0.046	0.434 2945	1.000 000	0.999 999	0.476	0.915 4123	1.462 558	0.677 6758
0.047	0.434 2945	1.000 000	0.999 999	0.477	0.915 8466	1.463 959	0.677 2464
0.048	0.434 2945	1.000 000	0.999 999	0.478	0.916 2809	1.465 360	0.676 8170
0.049	0.434 2945	1.000 000	0.999 999	0.479	0.916 7152	1.466 761	0.676 3876
0.050	0.434 2945	1.000 000	0.999 999	0.480	0.917 1495	1.468 162	0.675 9582
0.051	0.434 2945	1.000 000	0.999 999	0.481	0.917 5838	1.469 563	0.675 5288
0.052	0.434 2945	1.000 000	0.999 999	0.482	0.918 0181	1.470 964	0.675 0994
0.053	0.434 2945	1.000 000	0.999 999	0.483	0.918 4524	1.472 365	0.674 6700
0.054	0.434 2945	1.000 000	0.999 999	0.484	0.918 8867	1.473 766	0.674 2406
0.055	0.434 2945	1.000 000	0.999 999	0.485	0.919 3210	1.475 167	0.673 8112
0.056	0.434 2945	1.000 000	0.999 999	0.486	0.919 7553	1.476 568	0.673 3818
0.057	0.434 2945	1.000 000	0.999 999	0.487	0.920 1896	1.477 969	0.672 9524
0.058	0.434 2945	1.000 000	0.999 999	0.488	0.920 6239	1.479 370	0.672 5230
0.059	0.434 2945	1.000 000	0.999 999	0.489	0.921 0582	1.480 771	0.672 0936
0.060	0.434 2945	1.000 000	0.999 999	0.490	0.921 4925	1.482 172	0.671 6642
0.061	0.434 2945	1.000 000	0.999 999	0.491	0.921 9268	1.483 573	0.671 2348
0.062	0.434 2945	1.000 000	0.999 999	0.492	0.922 3611	1.484 974	0.670 8054
0.063	0.434 2945	1.000 000	0.999 999	0.493	0.922 7954	1.486 375	0.670 3760
0.064	0.434 2945	1.000 000	0.999 999	0.494	0.923 2297	1.487 776	0.669 9466
0.065	0.434 2945	1.000 000	0.999 999	0.495	0.923 6640	1.489 177	0.669 5172
0.066	0.434 2945	1.000 000	0.999 999	0.496	0.924 0983	1.490 578	0.669 0878
0.067	0.434 2945	1.000 000	0.999 999	0.497	0.924 5326	1.491 979	0.668 6584
0.068	0.434 2945	1.000 000	0.999 999	0.498	0.924 9669	1.493 380	0.668 2290
0.069	0.434 2945	1.000 000	0.999 999	0.499	0.925 4012	1.494 781	0.667 7996
0.070	0.434 2945	1.000 000	0.999 999	0.500	0.925 8355	1.496 182	0.667 3702
0.071	0.434 2945	1.000 000	0.999 999	0.501	0.926 2698	1.497 583	0.666 9408
0.072	0.434 2945	1.000 000	0.999 999	0.502	0.926 7041	1.498 984	0.666 5114
0.073	0.434 2945	1.000 000	0.999 999	0.503	0.927 1384	1.500 385	0.666 0820
0.074	0.434 2945	1.000 000	0.999 999	0.504	0.927 5727	1.501 786	0.665 6526
0.075	0.434 2945	1.000 000	0.999 999	0.505	0.928 0070	1.503 187	0.665 2232
0.076	0.434 2945	1.000 000	0.999 999	0.506	0.928 4413	1.504 588	0.664 7938
0.077	0.434 2945	1.000 000	0.999 999	0.507	0.928 8756	1.505 989	0.664 3644
0.078	0.434 2945	1.000 000	0.999 999	0.508	0.929 3099	1.507 390	0.663 9350
0.079	0.434 2945	1.000 000	0.999 999	0.509	0.929 7442	1.508 791	0.663 5056
0.080	0.434 2945	1.000 000	0.999 999	0.510	0.930 1785	1.510 192	0.663 0762
0.081	0.434 2945	1.000 000	0.999 999	0.511	0.930 6128	1.511 593	0.662 6468
0.082	0.434 2945	1.000 000	0.999 999	0.512	0.931 0471	1.512 994	0.662 2174
0.083	0.434 2945	1.000 000	0.999 999	0.513	0.931 4814	1.514 395	0.661 7880
0.084	0.434 2945	1.000 000	0.999 999	0.514	0.931 9157	1.515 796	0.661 3586
0.085	0.434 2945	1.000 000	0.999 999	0.515	0.932 3500	1.517 197	0.660 9292
0.086	0.434 2945	1.000 000	0.999 999	0.516	0.932 7843	1.518 598	0.660 4998
0.087	0.434 2945	1.000 000	0.999 999	0.517	0.933 2186	1.519 999	0.660 0704
0.088	0.434 2945	1.000 000	0.999 999	0.518	0.933 6529	1.521 400	0.659 6410
0.089	0.434 2945	1.000 000	0.999 999	0.519	0.934 0872	1.522 801	0.659 2116
0.090	0.434 2945	1.000 000	0.999 999	0.520	0.934 5215	1.524 202	0.658 7822
0.091	0.434 2945	1.000 000	0.999 999	0.521	0.934 9558	1.525 603	0.658 3528
0.092	0.434 2945	1.000 000	0.999 999	0.522	0.935 3901	1.527 004	0.657 9234
0.093	0.434 2945	1.000 000	0.999 999	0.523	0.935 8244	1.528 405	0.657 4940
0.094	0.434 2945	1.000 000	0.999 999	0.524	0.936 2587	1.529 806	0.657 0646
0.095	0.434 2945	1.000 000	0.999 999	0.525	0.936 6930	1.531 207	0.656 6352
0.096	0.434 2945	1.000 000	0.999 999	0.526	0.937 1273	1.532 608	0.656 2058
0.097	0.434 2945	1.000 000	0.999 999	0.527	0.937 5616	1.534 009	0.655 7764
0.098	0.434 2945	1.000 000	0.999 999	0.528	0.937 9959	1.535 410	0.655 3470
0.099	0.434 2945	1.000 000	0.999 999	0.529	0.938 4302	1.536 811	0.654 9176
0.100	0.434 2945	1.000 000	0.999 999	0.530	0.938 8645	1.538 212	0.654 4882

BUTTERFIELD TABLES

The Exponential.

u	$\log_{10}(e^u)$	e^u	e^{-u}	u	$\log_{10}(e^u)$	e^u	e^{-u}
0.500	0.217 1474	1.648 721	0.606 5307	0.550	0.238 8540	1.733 253	0.576 9388
.501	.217 3165	.650 371	.605 9444	.551	.239 2903	.731 987	.576 3731
.502	.218 0151	.652 024	.605 3188	.552	.239 7201	.736 731	.575 7071
.503	.218 4501	.653 675	.604 7138	.553	.240 1618	.741 461	.575 2266
.504	.218 8814	.655 329	.604 1004	.554	.240 5991	.746 200	.574 5466
0.505	0.219 3187	1.656 986	0.603 5995	0.555	0.241 0314	1.741 911	0.574 0721
.506	.219 7530	.658 643	.603 0824	.556	.241 4677	.743 681	.573 4645
.507	.220 1873	.660 303	.602 5698	.557	.241 9020	.745 428	.572 9253
.508	.220 6216	.661 964	.602 0608	.558	.242 3363	.747 175	.572 3530
.509	.221 0559	.663 627	.601 5544	.559	.242 7705	.748 943	.571 7886
0.510	0.221 4902	1.665 291	0.600 9995	0.560	0.243 2029	1.750 673	0.571 2001
.511	.221 9245	.666 957	.599 4954	.561	.243 6392	.752 428	.570 6381
.512	.222 3588	.668 625	.599 0058	.562	.244 0735	.754 177	.570 0708
.513	.222 7931	.670 295	.598 5168	.563	.244 5078	.755 932	.569 5080
.514	.223 2274	.671 964	.598 0294	.564	.244 9421	.757 689	.568 9388
0.515	0.223 6617	1.673 630	0.597 5005	0.565	0.245 3764	1.759 418	0.568 3501
.516	.224 0960	.675 313	.596 9834	.566	.245 8107	.761 208	.567 7921
.517	.224 5302	.676 984	.596 4608	.567	.246 2450	.762 970	.567 2266
.518	.224 9645	.678 667	.595 9408	.568	.246 6793	.764 734	.566 6526
.519	.225 3988	.680 346	.595 4154	.569	.247 1136	.766 500	.566 0912
0.520	0.225 8331	1.682 028	0.594 8905	0.570	0.247 5479	1.768 277	0.565 5254
.521	.226 2674	.683 711	.594 3653	.571	.247 9821	.770 036	.564 9602
.522	.226 7017	.685 395	.593 8437	.572	.248 4164	.771 807	.564 3955
.523	.227 1360	.687 081	.593 3227	.573	.248 8507	.773 580	.563 8314
.524	.227 5703	.688 769	.592 8024	.574	.249 2850	.775 354	.563 2670
0.525	0.228 0046	1.684 459	0.592 2854	0.575	0.249 7193	1.777 131	0.562 7030
.526	.228 4389	.686 150	.591 7641	.576	.250 1536	.778 903	.562 1324
.527	.228 8732	.687 843	.591 2434	.577	.250 5879	.780 688	.561 5600
.528	.229 3075	.689 538	.590 7244	.578	.251 0222	.782 470	.561 0013
.529	.229 7418	.691 234	.590 2030	.579	.251 4565	.784 253	.560 4385
0.530	0.230 1761	1.686 932	0.589 6850	0.580	0.251 8908	1.786 038	0.559 8814
.531	.230 6104	.690 632	.589 1667	.581	.252 3251	.787 825	.559 3287
.532	.231 0447	.692 334	.588 6489	.582	.252 7594	.789 614	.558 7707
.533	.231 4790	.694 037	.588 1318	.583	.253 1937	.791 405	.558 2212
.534	.231 9133	.695 742	.587 6153	.584	.253 6280	.793 197	.557 6632
0.535	0.232 3476	1.691 438	0.587 0963	0.585	0.254 0623	1.794 991	0.557 1080
.536	.232 7819	.693 157	.586 5790	.586	.254 4966	.796 787	.556 5500
.537	.233 2161	.694 876	.586 0621	.587	.254 9309	.798 585	.556 0008
.538	.233 6504	.696 598	.585 5460	.588	.255 3652	.800 384	.555 4370
.539	.234 0847	.698 324	.585 0313	.589	.255 7995	.802 185	.554 8800
0.540	0.234 5190	1.697 007	0.584 5181	0.590	0.256 2337	1.803 983	0.554 3273
.541	.234 9533	.699 724	.584 0058	.591	.256 6680	.805 793	.553 7732
.542	.235 3876	.701 442	.583 4930	.592	.257 1023	.807 600	.553 2197
.543	.235 8219	.703 163	.582 9826	.593	.257 5366	.809 409	.552 6658
.544	.236 2562	.704 885	.582 4719	.594	.257 9709	.811 219	.552 1134
0.545	0.236 6905	1.704 608	0.581 9618	0.595	0.258 4052	1.813 031	0.551 5606
.546	.237 1248	.706 334	.581 4522	.596	.258 8395	.814 845	.551 0113
.547	.237 5591	.708 061	.580 9433	.597	.259 2738	.816 661	.550 4605
.548	.237 9934	.709 790	.580 4349	.598	.259 7081	.818 478	.549 9104
.549	.238 4277	.711 521	.579 9270	.599	.260 1424	.820 298	.549 3607
0.550	0.238 8620	1.713 253	0.579 4198	0.600	0.260 5767	1.822 119	0.548 8166
$\log_{10}(e^u)$	$\log_{10}(e^u)$	e^u	e^{-u}	$\log_{10}(e^u)$	$\log_{10}(e^u)$	e^u	e^{-u}

The Exponential.

x	$\log_e(x^e)$	e^x	e^{-x}	x	$\log_e(x^e)$	e^x	e^{-x}
0.000	0.250 5767	1.812 119	0.548 8116	0.050	0.251 2014	1.915 541	0.537 724 0
.001	.250 6110	.812 512	.548 2930	.051	.251 7257	.917 437	.537 19 5
.002	.250 6453	.813 267	.547 7151	.052	.252 2500	.919 376	.536 66 0
.003	.250 6796	.814 021	.547 1672	.053	.252 7743	.921 317	.536 13 4
.004	.250 7139	.814 775	.546 6208	.054	.253 2986	.923 258	.535 60 0
0.005	0.252 7482	1.815 252	0.546 0711	0.055	0.253 8229	1.925 191	0.535 06 4
.006	.253 1825	.815 681	.545 5280	.056	.254 3472	.927 169	.534 53 0
.007	.253 6168	.816 108	.544 9841	.057	.254 8715	.929 147	.534 00 0
.008	.254 0510	.816 535	.544 4387	.058	.255 3958	.931 127	.533 47 0
.009	.254 4853	.816 962	.543 8945	.059	.255 9201	.933 109	.532 94 0
0.010	0.254 9196	1.817 431	0.543 3500	0.060	0.256 4444	1.935 082	0.532 41 0
.011	.255 3539	.817 857	.542 8058	.061	.256 9687	.937 060	.531 88 0
.012	.255 7882	.818 284	.542 2613	.062	.257 4930	.939 039	.531 35 0
.013	.256 2225	.818 711	.541 7171	.063	.258 0173	.941 019	.530 82 0
.014	.256 6568	.819 138	.541 1730	.064	.258 5416	.942 999	.530 29 0
0.015	0.257 0911	1.819 607	0.540 6291	0.065	0.259 0659	1.945 001	0.529 76 0
.016	.257 5254	.820 034	.540 0850	.066	.259 5902	.946 981	.529 23 0
.017	.257 9597	.820 461	.539 5407	.067	.260 1145	.948 961	.528 70 0
.018	.258 3940	.820 888	.539 0014	.068	.260 6388	.950 941	.528 17 0
.019	.258 8283	.821 315	.538 4572	.069	.261 1631	.952 921	.527 64 0
0.020	0.259 2626	1.821 784	0.537 9141	0.070	0.261 6874	1.955 001	0.527 11 0
.021	.259 6969	.822 211	.537 3698	.071	.262 2117	.956 981	.526 58 0
.022	.260 1312	.822 638	.536 8256	.072	.262 7360	.958 961	.526 05 0
.023	.260 5655	.823 065	.536 2813	.073	.263 2603	.960 941	.525 52 0
.024	.260 9998	.823 492	.535 7370	.074	.263 7846	.962 921	.524 99 0
0.025	0.261 4341	1.823 961	0.535 1941	0.075	0.264 3089	1.965 001	0.524 46 0
.026	.261 8684	.824 388	.534 6498	.076	.264 8332	.966 981	.523 93 0
.027	.262 3027	.824 815	.534 1056	.077	.265 3575	.968 961	.523 40 0
.028	.262 7370	.825 242	.533 5613	.078	.265 8818	.970 941	.522 87 0
.029	.263 1713	.825 669	.533 0170	.079	.266 4061	.972 921	.522 34 0
0.030	0.263 6056	1.826 138	0.532 4730	0.080	0.266 9304	1.975 001	0.521 81 0
.031	.264 0399	.826 565	.531 9287	.081	.267 4547	.976 981	.521 28 0
.032	.264 4742	.826 992	.531 3844	.082	.267 9790	.978 961	.520 75 0
.033	.264 9085	.827 419	.530 8401	.083	.268 5033	.980 941	.520 22 0
.034	.265 3428	.827 846	.530 2958	.084	.269 0276	.982 921	.519 69 0
0.035	0.265 7771	1.828 317	0.529 7515	0.085	0.269 5519	1.985 001	0.519 16 0
.036	.266 2114	.828 744	.529 2072	.086	.270 0762	.986 981	.518 63 0
.037	.266 6457	.829 171	.528 6629	.087	.270 6005	.988 961	.518 10 0
.038	.267 0800	.829 598	.528 1186	.088	.271 1248	.990 941	.517 57 0
.039	.267 5143	.830 025	.527 5743	.089	.271 6491	.992 921	.517 04 0
0.040	0.267 9486	1.830 494	0.527 0300	0.090	0.272 1734	1.995 001	0.516 51 0
.041	.268 3829	.830 921	.526 4857	.091	.272 6977	.996 981	.515 98 0
.042	.268 8172	.831 348	.525 9414	.092	.273 2220	.998 961	.515 45 0
.043	.269 2515	.831 775	.525 3971	.093	.273 7463	.999 941	.514 92 0
.044	.269 6858	.832 202	.524 8528	.094	.274 2706	1.000 921	.514 39 0
0.045	0.270 1201	1.832 673	0.524 3085	0.095	0.274 7949	1.002 001	0.513 86 0
.046	.270 5544	.833 100	.523 7642	.096	.275 3192	.999 981	.513 33 0
.047	.270 9887	.833 527	.523 2199	.097	.275 8435	.999 961	.512 80 0
.048	.271 4230	.833 954	.522 6756	.098	.276 3678	.999 941	.512 27 0
.049	.271 8573	.834 381	.522 1313	.099	.276 8921	1.001 921	.511 74 0
0.050	0.272 2916	1.834 850	0.521 5870	0.100	0.277 4164	1.003 001	0.511 21 0
100.0°	100.0°	e	e ⁻¹	100.0°	100.0°	e	e ⁻¹

The Exponential.

n	$\log_{10}(e^n)$	e^n	e^{-n}	n	$\log_{10}(e^n)$	e^n	e^{-n}
0.700	0.301 0691	2.013 753	0.496 5853	0.750	0.345 7309	2.117 000	0.472 3666
.701	.301 4104	.045 767	.050 6840	.751	.345 1552	.110 118	.471 8941
.702	.301 8747	.047 781	.048 5931	.752	.345 5805	.121 228	.471 4228
.703	.302 3590	.049 803	.046 5028	.753	.346 0437	.123 361	.470 9516
.704	.302 8433	.051 824	.044 6039	.754	.346 4580	.125 485	.470 4809
0.705	0.305 1776	2.023 817	0.494 1685	0.755	0.347 8923	2.127 612	0.470 0106
.706	.305 6110	.045 872	.043 6147	.756	.348 3266	.129 710	.469 5408
.707	.306 0452	.047 898	.041 7213	.757	.348 7609	.131 871	.469 0715
.708	.306 4895	.049 927	.039 8288	.758	.349 1952	.134 004	.468 6027
.709	.306 9148	.051 958	.037 9361	.759	.349 6295	.136 139	.468 1343
0.710	0.308 3491	2.033 991	0.491 6412	0.760	0.350 0638	2.138 276	0.467 6664
.711	.308 7834	.046 026	.039 1548	.761	.350 4981	.138 410	.467 1990
.712	.309 2177	.048 063	.037 6619	.762	.350 9324	.142 557	.466 7320
.713	.309 6520	.049 102	.035 1715	.763	.351 3667	.144 701	.466 2653
.714	.310 0853	.051 144	.033 6815	.764	.351 8010	.146 846	.465 7993
0.715	0.310 5205	2.044 187	0.489 1921	0.765	0.352 2353	2.148 991	0.465 3339
.716	.310 9548	.046 232	.038 7032	.766	.352 6696	.151 144	.464 8688
.717	.311 3891	.048 270	.036 2147	.767	.353 1039	.153 297	.464 4042
.718	.311 8231	.049 308	.034 7267	.768	.353 5382	.155 451	.463 9399
.719	.312 2577	.051 350	.032 2393	.769	.353 9725	.157 608	.463 4753
0.720	0.312 6920	2.054 433	0.486 7533	0.770	0.354 4068	2.159 766	0.463 0121
.721	.313 1263	.046 280	.036 2457	.771	.354 8410	.159 927	.462 5503
.722	.313 5606	.048 320	.034 7577	.772	.355 2753	.164 090	.462 0886
.723	.313 9949	.049 360	.032 2692	.773	.355 7096	.166 255	.461 6261
.724	.314 4292	.051 407	.030 7801	.774	.356 1439	.168 423	.461 1637
0.725	0.314 8635	2.064 738	0.484 3246	0.775	0.356 5782	2.170 592	0.460 7038
.726	.315 2978	.046 327	.034 8405	.776	.357 0125	.172 764	.460 2433
.727	.315 7321	.048 368	.032 3509	.777	.357 4468	.174 931	.459 7833
.728	.316 1664	.049 408	.030 8618	.778	.357 8811	.177 114	.459 3232
.729	.316 6007	.051 457	.028 3711	.779	.358 3154	.179 292	.458 8636
0.730	0.317 0350	2.075 081	0.481 9090	0.780	0.358 7497	2.181 472	0.458 4060
.731	.317 4693	.046 347	.034 4073	.781	.359 1840	.183 055	.457 9478
.732	.317 9036	.048 388	.032 4161	.782	.359 6183	.185 240	.457 4901
.733	.318 3379	.049 428	.030 9254	.783	.360 0526	.187 427	.457 0320
.734	.318 7721	.051 471	.028 4352	.784	.360 4869	.189 616	.456 5750
0.735	0.319 2064	2.085 482	0.479 5055	0.785	0.360 9212	2.192 407	0.456 1197
.736	.319 6407	.046 367	.034 4362	.786	.361 3555	.194 800	.455 6638
.737	.320 0750	.048 408	.032 4454	.787	.361 7898	.196 996	.455 2081
.738	.320 5093	.049 448	.030 9561	.788	.362 2241	.199 194	.454 7531
.739	.320 9436	.051 491	.028 4653	.789	.362 6583	.201 394	.454 2989
0.740	0.321 3779	2.095 995	0.477 1120	0.790	0.363 0926	2.203 266	0.453 8448
.741	.321 8122	.046 387	.034 4370	.791	.363 5269	.205 501	.453 3912
.742	.322 2465	.048 428	.032 4466	.792	.363 9612	.207 698	.452 9380
.743	.322 6808	.049 468	.030 9567	.793	.364 3955	.210 017	.452 4853
.744	.323 1151	.051 511	.028 4659	.794	.364 8298	.212 218	.452 0330
0.745	0.323 5494	2.106 441	0.474 7343	0.795	0.365 2641	2.214 441	0.451 5812
.746	.323 9837	.046 407	.034 4381	.796	.365 6984	.216 657	.451 1299
.747	.324 4180	.048 448	.032 4478	.797	.366 1327	.218 874	.450 6789
.748	.324 8523	.049 488	.030 9579	.798	.366 5670	.221 091	.450 2285
.749	.325 2866	.051 531	.028 4671	.799	.367 0013	.223 310	.449 7785
0.750	0.325 7209	2.117 000	0.472 3656	0.800	0.367 4356	2.225 541	0.449 3290
$\log_{10}(e^n)$	$\log_{10}(e^n)$	e^n	e^{-n}	$\log_{10}(e^n)$	$\log_{10}(e^n)$	e^n	e^{-n}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
0.800	0.347 4395	2.225 541	0.449 3290	0.850	0.369 1593	2.319 567	0.427 4149
0.801	0.347 8699	2.227 768	0.448 8799	0.851	0.369 5896	2.321 788	0.426 9872
0.802	0.348 3002	2.229 996	0.448 4312	0.852	0.369 1016	2.324 010	0.426 5600
0.803	0.348 7305	2.232 228	0.447 9830	0.853	0.369 5132	2.326 233	0.426 1366
0.804	0.349 1608	2.234 461	0.447 5352	0.854	0.369 9245	2.328 457	0.425 7157
0.805	0.349 5911	2.236 696	0.447 0879	0.855	0.370 3358	2.330 681	0.425 2962
0.806	0.350 0214	2.238 934	0.446 6411	0.856	0.370 7469	2.332 905	0.424 8781
0.807	0.350 4516	2.241 174	0.446 1946	0.857	0.371 1579	2.335 129	0.424 4615
0.808	0.350 8819	2.243 417	0.445 7487	0.858	0.371 5687	2.337 353	0.424 0463
0.809	0.351 3122	2.245 663	0.445 3033	0.859	0.371 9794	2.339 577	0.423 6325
0.810	0.351 7425	2.247 915	0.444 8584	0.860	0.372 3901	2.341 801	0.423 2191
0.811	0.352 1728	2.250 167	0.444 4141	0.861	0.372 8007	2.344 025	0.422 8071
0.812	0.352 6031	2.252 421	0.443 9702	0.862	0.373 2114	2.346 249	0.422 3965
0.813	0.353 0334	2.254 676	0.443 5265	0.863	0.373 6220	2.348 473	0.421 9873
0.814	0.353 4637	2.256 933	0.443 0832	0.864	0.374 0326	2.350 697	0.421 5795
0.815	0.353 8940	2.259 196	0.442 6403	0.865	0.374 4432	2.352 921	0.421 1731
0.816	0.354 3243	2.261 461	0.442 1979	0.866	0.374 8538	2.355 145	0.420 7680
0.817	0.354 7546	2.263 729	0.441 7559	0.867	0.375 2644	2.357 369	0.420 3641
0.818	0.355 1849	2.265 998	0.441 3141	0.868	0.375 6750	2.359 593	0.419 9614
0.819	0.355 6152	2.268 270	0.440 8723	0.869	0.376 0856	2.361 817	0.419 5600
0.820	0.356 0455	2.270 545	0.440 4317	0.870	0.376 4962	2.364 041	0.419 1606
0.821	0.356 4758	2.272 821	0.439 9914	0.871	0.376 9068	2.366 265	0.418 7621
0.822	0.356 9061	2.275 098	0.439 5517	0.872	0.377 3174	2.368 489	0.418 3646
0.823	0.357 3364	2.277 377	0.439 1123	0.873	0.377 7280	2.370 713	0.417 9681
0.824	0.357 7667	2.279 658	0.438 6731	0.874	0.378 1386	2.372 937	0.417 5726
0.825	0.358 1970	2.281 941	0.438 2342	0.875	0.378 5492	2.375 161	0.417 1781
0.826	0.358 6273	2.284 226	0.437 7956	0.876	0.378 9598	2.377 385	0.416 7846
0.827	0.359 0576	2.286 513	0.437 3573	0.877	0.379 3704	2.379 609	0.416 3921
0.828	0.359 4879	2.288 802	0.436 9193	0.878	0.379 7810	2.381 833	0.415 9996
0.829	0.359 9182	2.291 092	0.436 4816	0.879	0.380 1916	2.384 057	0.415 6081
0.830	0.360 3485	2.293 384	0.436 0443	0.880	0.380 6022	2.386 281	0.415 2176
0.831	0.360 7788	2.295 678	0.435 6073	0.881	0.381 0128	2.388 505	0.414 8281
0.832	0.361 2091	2.297 974	0.435 1706	0.882	0.381 4234	2.390 729	0.414 4396
0.833	0.361 6394	2.300 271	0.434 7341	0.883	0.381 8340	2.392 953	0.414 0521
0.834	0.362 0697	2.302 570	0.434 2978	0.884	0.382 2446	2.395 177	0.413 6656
0.835	0.362 4999	2.304 871	0.433 8618	0.885	0.382 6552	2.397 401	0.413 2801
0.836	0.362 9302	2.307 174	0.433 4261	0.886	0.383 0658	2.399 625	0.412 8956
0.837	0.363 3605	2.309 479	0.432 9907	0.887	0.383 4764	2.401 849	0.412 5121
0.838	0.363 7908	2.311 786	0.432 5556	0.888	0.383 8870	2.404 073	0.412 1296
0.839	0.364 2211	2.314 094	0.432 1207	0.889	0.384 2976	2.406 297	0.411 7481
0.840	0.364 6514	2.316 404	0.431 6861	0.890	0.384 7082	2.408 521	0.411 3676
0.841	0.365 0817	2.318 716	0.431 2518	0.891	0.385 1188	2.410 745	0.410 9881
0.842	0.365 5120	2.321 030	0.430 8178	0.892	0.385 5294	2.412 969	0.410 6096
0.843	0.365 9423	2.323 346	0.430 3841	0.893	0.385 9400	2.415 193	0.410 2321
0.844	0.366 3726	2.325 663	0.429 9507	0.894	0.386 3506	2.417 417	0.409 8556
0.845	0.366 8029	2.327 982	0.429 5176	0.895	0.386 7612	2.419 641	0.409 4801
0.846	0.367 2332	2.330 303	0.429 0848	0.896	0.387 1718	2.421 865	0.409 1056
0.847	0.367 6635	2.332 626	0.428 6523	0.897	0.387 5824	2.424 089	0.408 7321
0.848	0.368 0938	2.334 951	0.428 2201	0.898	0.387 9930	2.426 313	0.408 3596
0.849	0.368 5241	2.337 277	0.427 7881	0.899	0.388 4036	2.428 537	0.407 9881
0.850	0.368 9544	2.339 605	0.427 3563	0.900	0.388 8142	2.430 761	0.407 6176

... OTHER TABLES

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
0.000	0.000 0000	2.718 2818	0.367 8794	0.000	0.412 5378	2.585 710	0.385 7410
0.001	0.001 0001	2.719 5504	0.366 0319	0.001	0.413 0143	2.588 297	0.385 3545
0.002	0.002 0002	2.720 8209	0.364 1844	0.002	0.413 4908	2.590 884	0.384 9680
0.003	0.003 0003	2.722 0914	0.362 3369	0.003	0.413 9673	2.593 471	0.384 5815
0.004	0.004 0004	2.723 3619	0.360 4894	0.004	0.414 4438	2.596 058	0.384 1950
0.005	0.005 0005	2.724 6324	0.358 6419	0.005	0.414 9203	2.598 645	0.383 8085
0.006	0.006 0006	2.725 9029	0.356 7944	0.006	0.415 3968	2.601 232	0.383 4220
0.007	0.007 0007	2.727 1734	0.354 9469	0.007	0.415 8733	2.603 819	0.383 0355
0.008	0.008 0008	2.728 4439	0.353 0994	0.008	0.416 3498	2.606 406	0.382 6490
0.009	0.009 0009	2.729 7144	0.351 2519	0.009	0.416 8263	2.608 993	0.382 2625
0.010	0.010 0010	2.730 9849	0.349 4044	0.010	0.417 3028	2.611 580	0.381 8760
0.011	0.011 0011	2.732 2554	0.347 5569	0.011	0.417 7793	2.614 167	0.381 4895
0.012	0.012 0012	2.733 5259	0.345 7094	0.012	0.418 2558	2.616 754	0.381 1030
0.013	0.013 0013	2.734 7964	0.343 8619	0.013	0.418 7323	2.619 341	0.380 7165
0.014	0.014 0014	2.736 0669	0.342 0144	0.014	0.419 2088	2.621 928	0.380 3300
0.015	0.015 0015	2.737 3374	0.340 1669	0.015	0.419 6853	2.624 515	0.379 9435
0.016	0.016 0016	2.738 6079	0.338 3194	0.016	0.420 1618	2.627 102	0.379 5570
0.017	0.017 0017	2.739 8784	0.336 4719	0.017	0.420 6383	2.629 689	0.379 1705
0.018	0.018 0018	2.741 1489	0.334 6244	0.018	0.421 1148	2.632 276	0.378 7840
0.019	0.019 0019	2.742 4194	0.332 7769	0.019	0.421 5913	2.634 863	0.378 3975
0.020	0.020 0020	2.743 6899	0.330 9294	0.020	0.422 0678	2.637 450	0.378 0110
0.021	0.021 0021	2.744 9604	0.329 0819	0.021	0.422 5443	2.640 037	0.377 6245
0.022	0.022 0022	2.746 2309	0.327 2344	0.022	0.423 0208	2.642 624	0.377 2380
0.023	0.023 0023	2.747 5014	0.325 3869	0.023	0.423 4973	2.645 211	0.376 8515
0.024	0.024 0024	2.748 7719	0.323 5394	0.024	0.423 9738	2.647 798	0.376 4650
0.025	0.025 0025	2.750 0424	0.321 6919	0.025	0.424 4503	2.650 385	0.376 0785
0.026	0.026 0026	2.751 3129	0.319 8444	0.026	0.424 9268	2.652 972	0.375 6920
0.027	0.027 0027	2.752 5834	0.317 9969	0.027	0.425 4033	2.655 559	0.375 3055
0.028	0.028 0028	2.753 8539	0.316 1494	0.028	0.425 8798	2.658 146	0.374 9190
0.029	0.029 0029	2.755 1244	0.314 3019	0.029	0.426 3563	2.660 733	0.374 5325
0.030	0.030 0030	2.756 3949	0.312 4544	0.030	0.426 8328	2.663 320	0.374 1460
0.031	0.031 0031	2.757 6654	0.310 6069	0.031	0.427 3093	2.665 907	0.373 7595
0.032	0.032 0032	2.758 9359	0.308 7594	0.032	0.427 7858	2.668 494	0.373 3730
0.033	0.033 0033	2.760 2064	0.306 9119	0.033	0.428 2623	2.671 081	0.372 9865
0.034	0.034 0034	2.761 4769	0.305 0644	0.034	0.428 7388	2.673 668	0.372 6000
0.035	0.035 0035	2.762 7474	0.303 2169	0.035	0.429 2153	2.676 255	0.372 2135
0.036	0.036 0036	2.764 0179	0.301 3694	0.036	0.429 6918	2.678 842	0.371 8270
0.037	0.037 0037	2.765 2884	0.299 5219	0.037	0.430 1683	2.681 429	0.371 4405
0.038	0.038 0038	2.766 5589	0.297 6744	0.038	0.430 6448	2.684 016	0.371 0540
0.039	0.039 0039	2.767 8294	0.295 8269	0.039	0.431 1213	2.686 603	0.370 6675
0.040	0.040 0040	2.769 1000	0.293 9794	0.040	0.431 5978	2.689 190	0.370 2810
0.041	0.041 0041	2.770 3705	0.292 1319	0.041	0.432 0743	2.691 777	0.369 8945
0.042	0.042 0042	2.771 6410	0.290 2844	0.042	0.432 5508	2.694 364	0.369 5080
0.043	0.043 0043	2.772 9115	0.288 4369	0.043	0.433 0273	2.696 951	0.369 1215
0.044	0.044 0044	2.774 1820	0.286 5894	0.044	0.433 5038	2.699 538	0.368 7350
0.045	0.045 0045	2.775 4525	0.284 7419	0.045	0.433 9803	2.702 125	0.368 3485
0.046	0.046 0046	2.776 7230	0.282 8944	0.046	0.434 4568	2.704 712	0.367 9620
0.047	0.047 0047	2.777 9935	0.281 0469	0.047	0.434 9333	2.707 299	0.367 5755
0.048	0.048 0048	2.779 2640	0.279 1994	0.048	0.435 4098	2.709 886	0.367 1890
0.049	0.049 0049	2.780 5345	0.277 3519	0.049	0.435 8863	2.712 473	0.366 8025
0.050	0.050 0050	2.781 8050	0.275 5044	0.050	0.436 3628	2.715 060	0.366 4160
0.051	0.051 0051	2.783 0755	0.273 6569	0.051	0.436 8393	2.717 647	0.366 0295
0.052	0.052 0052	2.784 3460	0.271 8094	0.052	0.437 3158	2.720 234	0.365 6430
0.053	0.053 0053	2.785 6165	0.269 9619	0.053	0.437 7923	2.722 821	0.365 2565
0.054	0.054 0054	2.786 8870	0.268 1144	0.054	0.438 2688	2.725 408	0.364 8700
0.055	0.055 0055	2.788 1575	0.266 2669	0.055	0.438 7453	2.727 995	0.364 4835
0.056	0.056 0056	2.789 4280	0.264 4194	0.056	0.439 2218	2.730 582	0.364 0970
0.057	0.057 0057	2.790 6985	0.262 5719	0.057	0.439 6983	2.733 169	0.363 7105
0.058	0.058 0058	2.791 9690	0.260 7244	0.058	0.440 1748	2.735 756	0.363 3240
0.059	0.059 0059	2.793 2395	0.258 8769	0.059	0.440 6513	2.738 343	0.362 9375
0.060	0.060 0060	2.794 5100	0.257 0294	0.060	0.441 1278	2.740 930	0.362 5510
0.061	0.061 0061	2.795 7805	0.255 1819	0.061	0.441 6043	2.743 517	0.362 1645
0.062	0.062 0062	2.797 0510	0.253 3344	0.062	0.442 0808	2.746 104	0.361 7780
0.063	0.063 0063	2.798 3215	0.251 4869	0.063	0.442 5573	2.748 691	0.361 3915
0.064	0.064 0064	2.799 5920	0.249 6394	0.064	0.443 0338	2.751 278	0.361 0050
0.065	0.065 0065	2.800 8625	0.247 7919	0.065	0.443 5103	2.753 865	0.360 6185
0.066	0.066 0066	2.802 1330	0.245 9444	0.066	0.443 9868	2.756 452	0.360 2320
0.067	0.067 0067	2.803 4035	0.244 0969	0.067	0.444 4633	2.759 039	0.359 8455
0.068	0.068 0068	2.804 6740	0.242 2494	0.068	0.444 9398	2.761 626	0.359 4590
0.069	0.069 0069	2.805 9445	0.240 4019	0.069	0.445 4163	2.764 213	0.359 0725
0.070	0.070 0070	2.807 2150	0.238 5544	0.070	0.445 8928	2.766 800	0.358 6860
0.071	0.071 0071	2.808 4855	0.236 7069	0.071	0.446 3693	2.769 387	0.358 2995
0.072	0.072 0072	2.809 7560	0.234 8594	0.072	0.446 8458	2.771 974	0.357 9130
0.073	0.073 0073	2.811 0265	0.233 0119	0.073	0.447 3223	2.774 561	0.357 5265
0.074	0.074 0074	2.812 2970	0.231 1644	0.074	0.447 7988	2.777 148	0.357 1400
0.075	0.075 0075	2.813 5675	0.229 3169	0.075	0.448 2753	2.779 735	0.356 7535
0.076	0.076 0076	2.814 8380	0.227 4694	0.076	0.448 7518	2.782 322	0.356 3670
0.077	0.077 0077	2.816 1085	0.225 6219	0.077	0.449 2283	2.784 909	0.355 9805
0.078	0.078 0078	2.817 3790	0.223 7744	0.078	0.449 7048	2.787 496	0.355 5940
0.079	0.079 0079	2.818 6495	0.221 9269	0.079	0.450 1813	2.790 083	0.355 2075
0.080	0.080 0080	2.819 9200	0.220 0794	0.080	0.450 6578	2.792 670	0.354 8210
0.081	0.081 0081	2.821 1905	0.218 2319	0.081	0.451 1343	2.795 257	0.354 4345
0.082	0.082 0082	2.822 4610	0.216 3844	0.082	0.451 6108	2.797 844	0.354 0480
0.083	0.083 0083	2.823 7315	0.214 5369	0.083	0.452 0873	2.800 431	0.353 6615
0.084	0.084 0084	2.825 0020	0.212 6894	0.084	0.452 5638	2.803 018	0.353 2750
0.085	0.085 0085	2.826 2725	0.210 8419	0.085	0.453 0403	2.805 605	0.352 8885
0.086	0.086 0086	2.827 5430	0.208 9944	0.086	0.453 5168	2.808 192	0.352 5020
0.087	0.087 0087	2.828 8135	0.207 1469	0.087	0.453 9933	2.810 779	0.352 1155
0.088	0.088 0088	2.830 0840	0.205 2994	0.088	0.454 4698	2.813 366	0.351 7290
0.089	0.089 0089	2.831 3545	0.203 4519	0.089	0.454 9463	2.815 953	0.351 3425
0.090	0.090 0090	2.832 6250	0.201 6044	0.090	0.455 4228	2.818 540	0.350 9560
0.091	0.091 0091	2.833 8955	0.199 7569	0.091	0.455 8993	2.821 127	0.350 5695
0.092	0.092 0092	2.835 1660	0.197 9094	0.092	0.456 3758	2.823 714	0.350 1830
0.093	0.093 0093	2.836 4365	0.196 0619	0.093	0.456 8523	2.826 301	0.349 7965
0.094	0.094 0094	2.837 7070	0.194 2144	0.094	0.457 3288	2.828 888	0.349 4100
0.095	0.095 0095	2.838 9775	0.192 3669	0.095	0.457 8053	2.831 475	0.349 0235
0.096	0.096 0096	2.840 2480	0.190 5194	0.096	0.458 2818	2.834 062	0.348 6370
0.097	0.097 0097	2.841 5185	0.188 6719	0.097	0.458 7583	2.836 649	0.348 2505
0.098	0.098 0098	2.842 7890	0.186 8244	0.098	0.459 2348	2.839 236	0.347 8640
0.099	0.099 0099	2.844 0595	0.184 9769	0.099	0.459 7113	2.841 823	0.347 4775
0.100	0.100 0100	2.845 3300	0.183 1294	0.100	0.460 1878	2.844 410	0.347 0910

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
1.000	0.434 2945	2.718 282	0.367 8794	1.050	0.436 0002	2.852 061	0.349 9377
.001	0.44 7288	2.71 001	0.36 5117	.051	0.45 1435	2.80 510	0.40 9886
.002	0.45 1631	2.72 224	0.36 1441	.052	0.45 1978	2.81 272	0.40 2386
.003	0.45 5974	2.73 449	0.35 7775	.053	0.45 2521	2.82 037	0.39 4885
.004	0.46 0317	2.74 677	0.35 4109	.054	0.45 3064	2.82 805	0.38 7388
1.005	0.436 0002	2.731 007	0.361 0136	1.055	0.458 1807	2.871 075	0.348 1024
.006	0.46 4662	2.75 911	0.35 0288	.056	0.458 6950	2.878 312	0.340 5144
.007	0.47 3315	2.77 377	0.34 5333	.057	0.459 2094	2.885 550	0.332 9264
.008	0.47 7188	2.78 815	0.34 0380	.058	0.459 7237	2.892 788	0.325 3384
.009	0.48 1061	2.80 252	0.33 5427	.059	0.460 2380	2.900 026	0.317 7504
1.010	0.438 6121	2.745 602	0.364 2560	1.060	0.461 1512	2.888 171	0.336 4558
.011	0.49 5977	2.76 148	0.33 8549	.061	0.461 7654	2.911 559	0.328 1005
.012	0.49 9850	2.77 695	0.33 3591	.062	0.462 2797	2.918 797	0.319 7452
.013	0.50 3723	2.79 242	0.32 8633	.063	0.462 7940	2.926 035	0.311 3899
.014	0.50 7596	2.80 789	0.32 3675	.064	0.463 3083	2.933 273	0.303 0346
1.015	0.440 8080	2.759 363	0.367 3021	1.065	0.463 8226	2.900 849	0.344 7270
.016	0.51 1452	2.812 121	0.32 0103	.066	0.464 3369	2.933 741	0.311 3831
.017	0.51 5325	2.82 768	0.31 5145	.067	0.464 8512	2.940 979	0.303 0288
.018	0.51 9198	2.84 315	0.31 0187	.068	0.465 3655	2.948 217	0.294 6745
.019	0.52 3071	2.85 862	0.30 5229	.069	0.465 8798	2.955 455	0.286 3202
1.020	0.442 9801	2.773 195	0.360 8049	1.070	0.466 3941	2.915 379	0.343 0085
.021	0.52 6944	2.775 650	0.30 0245	.071	0.466 9084	2.922 617	0.314 6657
.022	0.53 1017	2.78 217	0.29 5287	.072	0.467 4227	2.929 855	0.306 3114
.023	0.53 5090	2.78 784	0.29 0329	.073	0.467 9370	2.937 093	0.297 9571
.024	0.53 9163	2.79 351	0.28 5371	.074	0.468 4513	2.944 331	0.289 6028
1.025	0.445 1518	2.787 095	0.358 7055	1.075	0.468 9656	2.930 583	0.341 2508
.026	0.54 3241	2.79 901	0.28 0413	.076	0.469 4799	2.937 821	0.281 2566
.027	0.54 7314	2.80 468	0.27 5455	.077	0.469 9942	2.945 059	0.272 8023
.028	0.55 1387	2.81 035	0.27 0497	.078	0.470 5085	2.952 297	0.264 3480
.029	0.55 5460	2.81 602	0.26 5539	.079	0.471 0228	2.959 535	0.255 8937
1.030	0.447 3233	2.801 066	0.357 0070	1.080	0.471 5371	2.925 680	0.339 5155
.031	0.54 9520	2.82 168	0.26 0581	.081	0.472 0514	2.932 918	0.280 2901
.032	0.55 3593	2.82 735	0.25 5623	.082	0.472 5657	2.940 156	0.271 8358
.033	0.55 7666	2.83 302	0.25 0665	.083	0.473 0800	2.947 394	0.263 3815
.034	0.56 1739	2.83 869	0.24 5707	.084	0.473 5943	2.954 632	0.254 9272
1.035	0.449 4948	2.815 106	0.355 2051	1.085	0.474 1086	2.940 440	0.337 0008
.036	0.56 5812	2.84 432	0.24 0749	.086	0.474 6229	2.947 678	0.273 5011
.037	0.56 9885	2.85 000	0.23 5791	.087	0.475 1372	2.954 916	0.265 0468
.038	0.57 3958	2.85 567	0.23 0833	.088	0.475 6515	2.962 154	0.256 5925
.039	0.57 8031	2.86 134	0.22 5875	.089	0.476 1658	2.969 392	0.248 1382
1.040	0.451 6663	2.839 217	0.353 4037	1.090	0.476 6801	2.936 294	0.335 2055
.041	0.58 2005	2.86 703	0.23 0891	.091	0.477 1944	2.977 532	0.243 8883
.042	0.58 6078	2.87 270	0.22 5933	.092	0.477 7087	2.984 770	0.235 4340
.043	0.59 0151	2.87 837	0.22 0975	.093	0.478 2230	2.992 008	0.226 9797
.044	0.59 4224	2.88 404	0.21 6017	.094	0.478 7373	2.999 246	0.218 5254
1.045	0.453 8377	2.843 399	0.351 6018	1.095	0.479 2516	2.985 181	0.334 5306
.046	0.59 8297	2.89 976	0.21 1059	.096	0.479 7659	2.992 419	0.230 0763
.047	0.60 2370	2.90 543	0.20 6101	.097	0.480 2802	2.999 657	0.221 6220
.048	0.60 6443	2.91 110	0.20 1143	.098	0.480 7945	3.006 895	0.213 1677
.049	0.61 0516	2.91 677	0.19 6185	.099	0.481 3088	3.014 133	0.204 7134
1.050	0.456 0098	2.857 651	0.349 9377	1.100	0.477 7289	3.003 166	0.342 8711
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

SMITHSONIAN TABLES

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
1.000	0.437 7420	3.490 165	0.332 8711	1.190	0.490 4387	3.158 193	0.316 6308
1.001	0.438 1854	3.497 174	0.332 5384	1.181	0.492 8729	3.161 353	0.316 3403
1.002	0.438 6305	3.504 180	0.332 2060	1.172	0.495 3071	3.164 510	0.316 0501
1.003	0.439 0768	3.511 193	0.331 8740	1.163	0.497 7415	3.167 662	0.315 7683
1.004	0.439 5241	3.518 207	0.331 5423	1.154	0.491 1758	3.170 851	0.315 4848
1.005	0.440 9754	3.525 223	0.331 2109	1.145	0.491 6101	3.174 043	0.315 2075
1.006	0.441 4272	3.532 245	0.330 8798	1.136	0.492 0444	3.177 199	0.314 9366
1.007	0.441 8790	3.539 269	0.330 5491	1.127	0.492 4787	3.180 308	0.314 6611
1.008	0.442 3313	3.546 296	0.330 2187	1.118	0.492 9130	3.183 370	0.314 3818
1.009	0.442 7840	3.553 326	0.329 8887	1.109	0.493 3473	3.186 385	0.314 1088
1.100	0.462 0440	3.634 358	0.329 5590	1.100	0.493 7816	3.189 353	0.313 8422
1.101	0.462 4962	3.641 391	0.329 2296	1.091	0.494 2159	3.192 285	0.313 5719
1.102	0.462 9485	3.648 423	0.328 9005	1.082	0.494 6502	3.195 180	0.313 3078
1.103	0.463 4008	3.655 455	0.328 5718	1.073	0.495 0845	3.198 037	0.313 0491
1.104	0.463 8531	3.662 486	0.328 2434	1.064	0.495 5188	3.200 857	0.312 7957
1.115	0.463 2553	3.693 508	0.327 9153	1.105	0.495 9531	3.203 643	0.312 5477
1.116	0.463 7076	3.700 530	0.327 5875	1.096	0.496 3874	3.206 394	0.312 3050
1.117	0.464 1599	3.707 553	0.327 2601	1.087	0.496 8217	3.209 110	0.312 0674
1.118	0.464 6122	3.714 575	0.326 9330	1.078	0.497 2560	3.211 791	0.311 8350
1.119	0.465 0645	3.721 598	0.326 6062	1.069	0.497 6902	3.214 437	0.311 6075
1.120	0.465 5168	3.728 621	0.326 2798	1.100	0.498 1245	3.217 048	0.311 3850
1.121	0.465 9691	3.735 644	0.325 9537	1.091	0.498 5588	3.219 624	0.311 1674
1.122	0.466 4214	3.742 667	0.325 6279	1.082	0.498 9931	3.222 165	0.310 9548
1.123	0.466 8737	3.749 690	0.325 3024	1.073	0.499 4274	3.224 671	0.310 7472
1.124	0.467 3260	3.756 713	0.324 9773	1.064	0.499 8617	3.227 143	0.310 5446
1.125	0.467 7783	3.763 736	0.324 6525	1.105	0.500 2960	3.229 580	0.310 3469
1.126	0.468 2306	3.770 759	0.324 3280	1.096	0.500 7303	3.232 000	0.310 1542
1.127	0.468 6829	3.777 782	0.324 0038	1.087	0.501 1646	3.234 393	0.310 0000
1.128	0.469 1352	3.784 805	0.323 6799	1.078	0.501 5989	3.236 759	0.309 8458
1.129	0.469 5875	3.791 828	0.323 3565	1.069	0.502 0332	3.239 091	0.309 6916
1.130	0.470 0398	3.798 851	0.323 0333	1.100	0.502 4675	3.241 400	0.309 5474
1.131	0.470 4921	3.805 874	0.322 7104	1.091	0.502 9018	3.243 687	0.309 4032
1.132	0.470 9444	3.812 897	0.322 3878	1.082	0.503 3361	3.245 941	0.309 2590
1.133	0.471 3967	3.819 920	0.322 0656	1.073	0.503 7704	3.248 163	0.309 1148
1.134	0.471 8490	3.826 943	0.321 7437	1.064	0.504 2047	3.250 354	0.308 9706
1.135	0.472 3013	3.833 966	0.321 4221	1.105	0.504 6390	3.252 617	0.308 8264
1.136	0.472 7536	3.840 989	0.321 1009	1.096	0.505 0733	3.254 859	0.308 6822
1.137	0.473 2059	3.848 012	0.320 7799	1.087	0.505 5076	3.257 079	0.308 5380
1.138	0.473 6582	3.855 035	0.320 4593	1.078	0.505 9419	3.259 277	0.308 3938
1.139	0.474 1105	3.862 058	0.320 1390	1.069	0.506 3762	3.261 453	0.308 2496
1.140	0.474 5628	3.869 081	0.319 8190	1.100	0.506 8105	3.263 607	0.308 1054
1.141	0.475 0151	3.876 104	0.319 4994	1.091	0.507 2448	3.265 739	0.307 9612
1.142	0.475 4674	3.883 127	0.319 1800	1.082	0.507 6791	3.267 849	0.307 8170
1.143	0.475 9197	3.890 150	0.318 8610	1.073	0.508 1134	3.269 937	0.307 6728
1.144	0.476 3720	3.897 173	0.318 5423	1.064	0.508 5477	3.272 003	0.307 5286
1.145	0.476 8243	3.904 196	0.318 2239	1.105	0.508 9820	3.274 147	0.307 3844
1.146	0.477 2766	3.911 219	0.317 9059	1.096	0.509 4163	3.276 269	0.307 2402
1.147	0.477 7289	3.918 242	0.317 5881	1.087	0.509 8506	3.278 369	0.307 0960
1.148	0.478 1812	3.925 265	0.317 2707	1.078	0.510 2849	3.280 447	0.306 9518
1.149	0.478 6335	3.932 288	0.316 9539	1.069	0.510 7192	3.282 503	0.306 8076
1.150	0.479 0858	3.939 311	0.316 6368	1.200	0.521 1534	3.320 117	0.301 1042
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
1.200	0.541 1534	3.320 117	0.301 1042	1.250	0.543 4641	3.490 343	0.286 5048
.201	.541 2877	.323 439	.300 8642	.251	.543 5921	.343 845	.285 2181
.202	.542 0280	.326 704	.300 5021	.252	.543 7197	.367 431	.283 9321
.203	.542 4593	.330 002	.300 2030	.253	.544 1210	.390 849	.282 6466
.204	.542 8906	.333 424	.300 0018	.254	.544 6053	.414 312	.281 3611
1.205	0.543 3220	3.366 750	0.299 6020	1.255	0.545 0896	3.597 848	0.280 0758
.206	.543 7501	.340 028	.300 3025	.256	.545 4240	.438 148	.278 7903
.207	.544 1934	.343 430	.300 1913	.257	.545 6854	.463 801	.277 5048
.208	.544 6277	.346 784	.300 7913	.258	.545 8125	.488 498	.276 2194
.209	.545 0620	.350 143	.300 4920	.259	.546 7748	.512 848	.274 9340
1.210	0.545 4963	3.353 485	0.298 1923	1.260	0.547 0110	3.535 421	0.283 6486
.211	.545 9305	.356 810	.307 8922	.261	.547 6153	.538 449	.281 3632
.212	.546 3649	.360 168	.307 6015	.262	.548 0796	.562 470	.280 0777
.213	.546 7992	.363 501	.307 3010	.263	.548 5139	.586 014	.278 7923
.214	.547 2335	.366 945	.307 0000	.264	.548 9082	.609 551	.277 5068
1.215	0.547 6678	3.370 291	0.296 7100	1.265	0.549 1825	3.541 093	0.286 2214
.216	.548 1021	.373 666	.307 4145	.266	.549 8668	.633 413	.284 9359
.217	.548 5364	.377 044	.307 1722	.267	.550 2911	.656 481	.283 6505
.218	.548 9707	.380 430	.306 8212	.268	.550 6854	.680 728	.282 3650
.219	.549 4050	.383 822	.306 5455	.269	.551 1407	.705 203	.281 0796
1.220	0.549 8393	3.387 183	0.295 2302	1.270	0.551 5530	3.590 483	0.289 7942
.221	.550 2736	.387 577	.306 0351	.271	.551 6883	.730 443	.288 5087
.222	.550 7079	.391 040	.305 6801	.272	.552 1436	.755 050	.287 2232
.223	.551 1422	.394 503	.305 3858	.273	.552 8940	.780 331	.285 9377
.224	.551 5764	.398 001	.305 0516	.274	.553 2982	.806 281	.284 6523
1.225	0.552 0107	3.404 166	0.293 7577	1.275	0.553 7258	3.578 280	0.293 3668
.226	.552 4450	.397 572	.303 4041	.276	.554 1928	.832 282	.292 0813
.227	.552 8793	.401 080	.303 1768	.277	.554 7011	.856 846	.290 7958
.228	.553 3136	.404 591	.302 8777	.278	.555 0814	.881 451	.289 5103
.229	.553 7479	.408 100	.302 5850	.279	.555 6030	.906 281	.288 2248
1.230	0.554 1822	3.421 230	0.292 2825	1.280	0.555 8949	3.596 610	0.296 9393
.231	.554 6165	.411 652	.302 0803	.281	.556 1444	.930 248	.295 6538
.232	.555 0508	.416 079	.301 7883	.282	.556 7055	.955 801	.294 3683
.233	.555 4851	.421 593	.301 4170	.283	.557 0928	.981 407	.293 0828
.234	.555 9194	.426 942	.301 1057	.284	.557 6341	.101 055	.291 7973
1.235	0.556 3537	3.438 370	0.290 8348	1.285	0.558 0684	3.611 648	0.290 5118
.236	.556 7880	.431 810	.300 5111	.286	.558 5037	.106 881	.289 2263
.237	.557 2223	.435 364	.300 2537	.287	.558 9190	.112 831	.287 9408
.238	.557 6566	.438 900	.300 0035	.288	.559 3714	.118 845	.286 6553
.239	.558 0909	.442 460	.300 6937	.289	.559 8018	.124 931	.285 3698
1.240	0.558 5252	3.455 613	0.289 3812	1.290	0.560 2360	3.631 287	0.294 0843
.241	.558 9595	.446 071	.300 1050	.291	.560 6712	.130 421	.292 7988
.242	.559 3937	.449 532	.300 8060	.292	.561 1085	.136 050	.291 5133
.243	.559 8280	.453 060	.300 5171	.293	.561 5128	.141 701	.290 2278
.244	.560 2623	.456 564	.300 2280	.294	.561 9271	.147 347	.288 9423
1.245	0.560 6966	3.472 935	0.288 0300	1.295	0.562 4114	3.650 996	0.292 6568
.246	.561 1309	.460 001	.300 6531	.296	.562 8159	.153 640	.291 3713
.247	.561 5652	.463 088	.300 3551	.297	.563 2709	.159 505	.290 0858
.248	.561 9995	.466 190	.300 0781	.298	.563 7144	.165 405	.288 7993
.249	.562 4338	.469 251	.300 7914	.299	.564 1385	.171 340	.287 5138
1.250	0.562 8681	3.490 343	0.286 5048	1.300	0.564 5828	3.670 297	0.291 2283
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

SMITHSONIAN TABLES

The Exponential.

x	$\log_e(x^a)$	a^x	a^{-x}	x	$\log_e(x^b)$	b^x	b^{-x}
1.300	0.561 5828	3.669 207	0.272 5378	1.350	0.586 2076	3.857 436	0.259 2103
.301	.563 0171	.692 968	.472 4291	.351	.586 7118	.811 256	.258 6811
.302	.565 4514	.676 643	.471 9873	.352	.587 1661	.805 138	.258 7221
.303	.567 8857	.660 321	.471 7151	.353	.587 6000	.800 015	.258 4637
.304	.569 3200	.644 003	.471 4438	.354	.588 0347	.794 885	.258 4054
1.305	0.566 7513	3.687 689	0.271 1725	1.355	0.588 4600	3.876 764	0.257 9173
.306	.569 1856	.691 329	.470 9015	.356	.588 8853	.800 010	.257 6835
.307	.569 6200	.665 072	.470 6307	.357	.589 3176	.801 522	.257 4319
.308	.568 0572	.648 710	.470 3602	.358	.589 7710	.800 309	.257 1745
.309	.568 4935	.712 419	.470 0900	.359	.590 2662	.802 269	.256 9176
1.310	0.568 9288	3.706 174	0.269 8201	1.360	0.590 6103	3.896 103	0.256 6668
.311	.569 3601	.709 882	.469 5504	.361	.591 0748	.800 001	.256 4032
.312	.569 7914	.713 593	.469 2810	.362	.591 5001	.803 063	.256 1480
.313	.570 2227	.717 309	.469 0118	.363	.591 9131	.807 869	.255 8919
.314	.570 6629	.721 028	.468 7429	.364	.592 3777	.811 809	.255 6362
1.315	0.571 0972	3.724 731	0.268 4743	1.365	0.592 8120	3.915 723	0.255 3807
.316	.571 5315	.728 478	.468 2060	.366	.593 2463	.816 641	.255 1254
.317	.571 9658	.732 208	.467 9370	.367	.593 6806	.821 502	.254 8704
.318	.572 4001	.735 942	.467 6691	.368	.594 1149	.827 488	.254 6157
.319	.572 8344	.739 680	.467 4026	.369	.594 5494	.831 417	.254 3612
1.320	0.573 2687	3.743 421	0.267 1353	1.370	0.594 9831	3.935 351	0.254 1070
.321	.573 7030	.747 167	.467 8684	.371	.595 4177	.836 888	.253 8530
.322	.574 1373	.750 916	.467 6016	.372	.595 8520	.843 239	.253 5993
.323	.574 5716	.754 660	.467 3351	.373	.596 2863	.847 174	.253 3458
.324	.575 0059	.758 415	.467 0689	.374	.596 7205	.851 124	.253 0926
1.325	0.575 4402	3.762 185	0.265 8690	1.375	0.597 1549	3.955 977	0.252 8396
.326	.575 8745	.765 949	.465 5373	.376	.597 5892	.859 034	.252 5869
.327	.576 3088	.769 717	.465 2719	.377	.598 0235	.862 995	.252 3341
.328	.576 7431	.773 480	.465 0067	.378	.598 4578	.866 960	.252 0812
.329	.577 1774	.777 241	.464 7419	.379	.598 8921	.870 929	.251 8293
1.330	0.577 6117	3.781 013	0.264 4773	1.380	0.599 3264	3.974 602	0.251 5765
.331	.578 0460	.784 820	.464 2120	.381	.599 7607	.874 899	.251 3241
.332	.578 4804	.788 613	.463 9488	.382	.600 1950	.882 820	.251 0729
.333	.578 9147	.792 404	.463 6860	.383	.600 6293	.886 814	.250 8240
.334	.579 3493	.796 198	.463 4215	.384	.601 0636	.890 833	.250 5742
1.335	0.579 7831	3.799 906	0.263 1682	1.385	0.601 4979	3.999 861	0.250 3238
.336	.580 2174	.803 708	.462 8951	.386	.601 9322	.894 823	.250 0736
.337	.580 6517	.807 501	.462 6324	.387	.602 3665	.900 824	.249 8237
.338	.581 0860	.811 293	.462 3699	.388	.602 8007	.906 848	.249 5740
.339	.581 5203	.815 086	.462 1076	.389	.603 2350	.910 837	.249 3245
1.340	0.581 9546	3.819 044	0.261 8157	1.390	0.603 6693	4.014 890	0.249 0753
.341	.582 3889	.818 802	.461 5500	.391	.604 1036	.918 817	.248 8264
.342	.582 8232	.822 589	.461 2845	.392	.604 5379	.922 888	.248 5777
.343	.583 2575	.826 378	.461 0193	.393	.604 9722	.926 913	.248 3294
.344	.583 6918	.830 170	.460 7501	.394	.605 4065	.930 942	.248 0810
1.345	0.584 1261	3.838 187	0.260 5307	1.395	0.605 8408	4.034 075	0.247 8330
.346	.584 5604	.834 027	.460 2703	.396	.606 2751	.935 012	.247 5853
.347	.584 9947	.837 871	.460 0091	.397	.606 7094	.939 053	.247 3379
.348	.585 4290	.841 718	.459 7503	.398	.607 1437	.943 098	.247 0907
.349	.585 8633	.845 570	.459 4906	.399	.607 5780	.951 117	.246 8437
1.350	0.586 2976	3.857 426	0.259 2403	1.400	0.608 0123	4.055 300	0.246 5970
$\log_e(x^a)$	$\log_e(x^b)$	a^x	a^{-x}	$\log_e(x^b)$	$\log_e(x^a)$	b^x	b^{-x}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
1.400	0.608 0123	4.055 200	0.246 5970	1.490	0.699 7970	4.263 115	0.234 5703
.401	.608 4466	.450 257	.246 1975	.491	.610 1013	.207 310	.234 3158
.402	.608 8809	.053 318	.245 7983	.492	.610 5095	.271 049	.234 1016
.403	.609 3152	.067 384	.245 3993	.493	.611 0299	.275 923	.233 8976
.404	.609 7495	.071 453	.245 0015	.494	.611 4612	.280 201	.233 6939
1.405	0.610 1837	4.075 527	0.245 3671	1.455	0.631 8085	1.284 483	0.233 4001
.406	.610 6180	.079 604	.245 1218	.456	.632 3248	.885 770	.233 1671
.407	.611 0523	.083 685	.244 8768	.457	.632 7671	.893 051	.232 9340
.408	.611 4866	.087 772	.244 6321	.458	.633 2014	.207 356	.232 7012
.409	.611 9209	.091 851	.244 3875	.459	.633 6356	.301 056	.232 4686
1.410	0.612 3552	4.095 955	0.244 1433	1.460	0.634 0699	4.305 950	0.232 2363
.411	.612 7895	.100 033	.243 8993	.461	.634 5042	.310 268	.232 0032
.412	.613 2238	.104 130	.243 6555	.462	.634 9385	.314 580	.231 7723
.413	.613 6581	.108 262	.243 4120	.463	.635 3728	.318 897	.231 5406
.414	.614 0924	.112 372	.243 1687	.464	.635 8071	.323 218	.231 3092
1.415	0.614 5267	4.116 485	0.242 9256	1.465	0.636 2414	4.327 543	0.231 0780
.416	.614 9610	.120 605	.242 6828	.466	.636 6757	.331 873	.230 8470
.417	.615 3953	.124 728	.242 4402	.467	.637 1100	.336 207	.230 6163
.418	.615 8296	.128 854	.242 1979	.468	.637 5443	.340 545	.230 3858
.419	.616 2639	.132 985	.241 9559	.469	.637 9786	.344 888	.230 1555
1.420	0.616 6982	4.137 120	0.241 7130	1.470	0.638 4129	4.340 235	0.229 9255
.421	.617 1325	.141 260	.241 4724	.471	.638 8472	.353 587	.229 6957
.422	.617 5668	.145 403	.241 2311	.472	.639 2815	.357 912	.229 4661
.423	.618 0010	.149 550	.240 9900	.473	.639 7158	.362 262	.229 2367
.424	.618 4353	.153 702	.240 7491	.474	.640 1501	.366 607	.229 0076
1.425	0.618 8696	4.157 858	0.240 5085	1.475	0.640 5844	4.371 036	0.228 7787
.426	.619 3039	.160 018	.240 2681	.476	.641 0187	.375 430	.228 5504
.427	.619 7382	.166 182	.240 0270	.477	.641 4530	.379 787	.228 3216
.428	.620 1725	.170 350	.239 7860	.478	.641 8872	.384 169	.228 0934
.429	.620 6068	.174 523	.239 5484	.479	.642 3215	.388 555	.227 8651
1.430	0.621 0411	4.178 690	0.239 3089	1.480	0.642 7558	4.392 946	0.227 6377
.431	.621 4754	.182 880	.239 0697	.481	.643 1901	.397 344	.227 4106
.432	.621 9097	.187 035	.238 8308	.482	.643 6244	.401 740	.227 1839
.433	.622 3440	.191 254	.238 5921	.483	.644 0587	.406 144	.226 9568
.434	.622 7783	.195 427	.238 3536	.484	.644 4930	.410 553	.226 7299
1.435	0.623 2126	4.199 615	0.238 1154	1.485	0.644 9273	4.414 568	0.226 5023
.436	.623 6469	.203 817	.237 8771	.486	.645 3616	.419 383	.226 2760
.437	.624 0812	.208 033	.237 6396	.487	.645 7959	.423 804	.226 0508
.438	.624 5155	.212 263	.237 4021	.488	.646 2302	.428 230	.225 8230
.439	.624 9498	.216 477	.237 1648	.489	.646 6645	.432 661	.225 5981
1.440	0.625 3841	4.220 696	0.236 9278	1.490	0.647 0988	4.437 096	0.225 3727
.441	.625 8184	.224 919	.236 6909	.491	.647 5331	.441 535	.225 1474
.442	.626 2526	.229 146	.236 4544	.492	.647 9674	.445 979	.224 9222
.443	.626 6869	.233 377	.236 2180	.493	.648 4017	.450 427	.224 6976
.444	.627 1212	.237 619	.235 9819	.494	.648 8360	.454 879	.224 4730
1.445	0.627 5555	4.241 852	0.235 7461	1.495	0.649 2703	4.450 337	0.224 2486
.446	.627 9898	.246 050	.235 5104	.496	.649 7045	.459 798	.224 0245
.447	.628 4241	.250 344	.235 2751	.497	.650 1388	.468 261	.223 8006
.448	.628 8584	.254 597	.235 0399	.498	.650 5731	.472 735	.223 5769
.449	.629 2927	.258 851	.234 8050	.499	.651 0074	.477 210	.223 3534
1.490	0.629 7270	4.263 115	0.234 5703	1.500	0.651 4417	4.481 089	0.223 1302
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

SMITHSONIAN TABLES

The Exponential.

x	$\log_e(x^2)$	e^x	e^{-x}	x	$\log_e(x^2)$	e^x	e^{-x}
1.500	0.651 4417	4.481 680	0.223 1369	1.550	0.673 1954	4.711 470	0.212 2480
.901	.654 8760	.486 173	.222 0071	.551	.673 5007	.716 184	.212 0358
.902	.654 1103	.490 601	.222 0843	.552	.674 0430	.720 093	.211 8439
.903	.654 7440	.495 154	.222 4618	.553	.674 4993	.725 626	.211 6122
.904	.653 7780	.499 652	.222 2394	.554	.674 8930	.730 354	.211 4007
1.505	0.653 6132	4.504 154	0.222 0173	1.555	0.675 1279	4.735 087	0.211 1834
.906	.654 0475	.498 669	.221 7954	.556	.675 7022	.730 824	.210 9783
.907	.654 4816	.513 121	.221 5737	.557	.676 1075	.744 550	.210 7674
.908	.654 9161	.517 685	.221 3522	.558	.676 6008	.740 313	.210 5598
.909	.655 3504	.522 205	.221 1310	.559	.677 0531	.754 065	.210 3453
1.510	0.655 7847	4.526 731	0.220 9100	1.560	0.677 4904	4.758 821	0.210 1361
.511	.656 2190	.531 250	.220 6891	.561	.677 9337	.763 582	.209 9220
.512	.656 6533	.535 703	.220 4685	.562	.678 3680	.768 348	.209 7162
.513	.657 0876	.540 331	.220 2482	.563	.678 8023	.773 119	.209 5066
.514	.657 5218	.544 874	.220 0281	.564	.679 2366	.777 895	.209 2972
1.515	0.657 9561	4.549 421	0.219 8082	1.565	0.679 6709	4.782 675	0.209 0880
.516	.658 3904	.553 973	.219 5885	.566	.680 1052	.787 460	.208 8790
.517	.658 8247	.558 520	.219 3690	.567	.680 5395	.792 250	.208 6703
.518	.659 2590	.563 090	.219 1497	.568	.680 9737	.797 045	.208 4617
.519	.659 6933	.567 655	.218 9307	.569	.681 4080	.801 844	.208 2533
1.520	0.659 1276	4.572 225	0.218 7119	1.570	0.681 8423	4.806 638	0.208 0452
.521	.659 5619	.576 800	.218 4933	.571	.682 2766	.811 457	.207 8372
.522	.660 0062	.581 379	.218 2749	.572	.682 7109	.816 271	.207 6305
.523	.660 4405	.585 962	.218 0567	.573	.683 1452	.821 090	.207 4240
.524	.660 8848	.590 551	.217 8388	.574	.683 5795	.825 913	.207 2147
1.525	0.661 3191	4.595 144	0.217 6211	1.575	0.684 0138	4.830 742	0.207 0076
.526	.661 7534	.599 741	.217 4035	.576	.684 4481	.835 575	.206 8006
.527	.662 1877	.604 343	.217 1862	.577	.684 8824	.840 413	.206 5940
.528	.662 6220	.608 950	.216 9692	.578	.685 3167	.845 256	.206 3873
.529	.663 0563	.613 561	.216 7523	.579	.685 7510	.850 103	.206 1812
1.530	0.661 4906	4.618 177	0.216 5357	1.580	0.686 1853	4.854 956	0.205 9751
.531	.661 9249	.623 797	.216 3192	.581	.686 6196	.859 813	.205 7692
.532	.662 3591	.627 422	.216 1030	.582	.687 0539	.864 675	.205 5636
.533	.662 7934	.632 052	.215 8870	.583	.687 4882	.869 543	.205 3581
.534	.663 2277	.636 687	.215 6713	.584	.687 9225	.874 415	.205 1528
1.535	0.663 6620	4.641 326	0.215 4557	1.585	0.688 3568	4.879 291	0.204 9478
.536	.664 0963	.645 950	.215 2403	.586	.688 7910	.884 173	.204 7429
.537	.664 5306	.650 617	.215 0252	.587	.689 2253	.889 060	.204 5383
.538	.664 9649	.655 278	.214 8103	.588	.689 6596	.893 951	.204 3339
.539	.665 3992	.659 928	.214 5950	.589	.690 0939	.898 848	.204 1296
1.540	0.665 8335	4.664 990	0.214 3811	1.590	0.690 5282	4.904 729	0.203 9256
.541	.666 2678	.669 587	.214 1668	.591	.690 9625	.909 625	.203 7218
.542	.666 7021	.674 229	.213 9528	.592	.691 3968	.914 526	.203 5182
.543	.667 1364	.678 905	.213 7389	.593	.691 8311	.919 432	.203 3148
.544	.667 5707	.683 583	.213 5253	.594	.692 2654	.924 343	.203 1115
1.545	0.667 9950	4.688 672	0.213 3119	1.595	0.692 6997	4.930 339	0.202 9085
.546	.668 4293	.693 252	.213 0987	.596	.693 1340	.929 257	.202 7057
.547	.668 8636	.697 937	.212 8857	.597	.693 5683	.934 185	.202 5031
.548	.669 2979	.702 657	.212 6729	.598	.694 0026	.939 136	.202 3007
.549	.669 7322	.707 364	.212 4603	.599	.694 4369	.944 082	.202 0983
1.550	0.673 1954	4.711 470	0.212 2480	1.600	0.694 8712	4.935 032	0.201 8965
$\log_e(x^2)$	$\log_e(x^2)$	e^x	e^{-x}	$\log_e(x^2)$	$\log_e(x^2)$	e^x	e^{-x}

The Exponential.

u	$\log(u^e)$	e^u	e^{-u}	u	$\log(u^e)$	e^u	e^{-u}
1.600	0.694 8712	4.053 032	0.201 8965	1.650	0.716 5859	5.206 080	0.192 0189
.601	.695 3095	.957 983	.201 6947	.651	.717 0202	.212 189	.191 8580
.602	.695 7298	.959 048	.201 4931	.652	.717 4545	.217 401	.191 6962
.603	.696 1741	.960 014	.201 2917	.653	.717 8888	.222 624	.191 5346
.604	.696 6083	.960 884	.201 0905	.654	.718 3231	.227 849	.191 3732
1.605	0.697 0425	4.077 850	0.200 8896	1.655	0.718 7574	5.233 080	0.191 0921
.606	.697 4750	.961 840	.200 6888	.656	.719 1917	.238 316	.190 9311
.607	.697 9112	.962 825	.200 4882	.657	.719 6250	.243 557	.190 7703
.608	.698 3455	.963 810	.200 2878	.658	.720 0593	.248 803	.190 6096
.609	.698 7798	.964 811	.200 0876	.659	.720 4935	.254 054	.190 4493
1.610	0.699 2141	5.002 811	0.199 8876	1.660	0.720 9288	5.259 311	0.190 1700
.611	.699 6484	.007 817	.199 6878	.661	.721 3631	.264 573	.189 9489
.612	.700 0827	.012 847	.199 4882	.662	.721 7974	.269 840	.189 8147
.613	.700 5170	.017 842	.199 2888	.663	.722 2317	.275 112	.189 6804
.614	.700 9513	.022 863	.199 0897	.664	.722 6660	.280 390	.189 5470
1.615	0.701 3856	5.027 888	0.198 8907	1.665	0.723 1003	5.285 673	0.189 1007
.616	.701 8199	.032 918	.198 6919	.666	.723 5346	.290 962	.189 0016
.617	.702 2542	.037 954	.198 4933	.667	.723 9689	.296 255	.188 8147
.618	.702 6885	.042 994	.198 2949	.668	.724 4032	.301 554	.188 6239
.619	.703 1228	.048 040	.198 0967	.669	.724 8375	.306 858	.188 4354
1.620	0.703 5571	5.053 090	0.197 8987	1.670	0.725 2718	5.312 168	0.188 2471
.621	.703 9914	.053 145	.197 7000	.671	.725 7061	.317 483	.188 0589
.622	.704 4256	.058 207	.197 5033	.672	.726 1404	.322 803	.187 8700
.623	.704 8599	.063 273	.197 3099	.673	.726 5747	.328 128	.187 6812
.624	.705 2942	.068 343	.197 1087	.674	.727 0090	.333 459	.187 4936
1.625	0.705 7285	5.078 410	0.196 9117	1.675	0.727 4433	5.338 795	0.187 3084
.626	.706 1628	.083 360	.196 7140	.676	.727 8776	.338 137	.187 1210
.627	.706 5971	.088 385	.196 5182	.677	.728 3118	.343 483	.186 9339
.628	.707 0314	.093 417	.196 3238	.678	.728 7461	.351 836	.186 7471
.629	.707 4657	.098 473	.196 1296	.679	.729 1804	.356 195	.186 5604
1.630	0.707 9000	5.103 875	0.195 9296	1.680	0.729 6147	5.345 596	0.186 3740
.631	.708 3343	.103 681	.195 7337	.681	.730 0490	.360 924	.186 1877
.632	.708 7686	.114 693	.195 5381	.682	.730 4833	.366 268	.186 0016
.633	.709 2029	.119 709	.195 3427	.683	.730 9176	.371 617	.185 8157
.634	.709 6372	.124 731	.195 1474	.684	.731 3519	.376 961	.185 6300
1.635	0.710 0715	5.129 458	0.194 9534	1.685	0.731 7862	5.352 451	0.185 4444
.636	.710 5058	.134 800	.194 7575	.686	.732 2205	.382 306	.185 2591
.637	.710 9401	.139 737	.194 5620	.687	.732 6548	.387 547	.185 0730
.638	.711 3744	.144 869	.194 3684	.688	.733 0891	.392 793	.184 8889
.639	.711 8087	.150 017	.194 1741	.689	.733 5234	.398 044	.184 7041
1.640	0.712 2429	5.155 120	0.193 9800	1.690	0.733 9577	5.419 481	0.184 5195
.641	.712 6772	.155 337	.193 7852	.691	.734 3920	.403 503	.184 3351
.642	.713 1115	.160 499	.193 5905	.692	.734 8263	.408 731	.184 1509
.643	.713 5458	.165 698	.193 3960	.693	.735 2606	.413 964	.183 9668
.644	.713 9801	.170 831	.193 2027	.694	.735 6949	.419 202	.183 7829
1.645	0.714 4144	5.181 030	0.193 0126	1.695	0.736 1291	5.446 616	0.183 5992
.646	.714 8487	.185 104	.192 8190	.696	.736 5634	.424 965	.183 4157
.647	.715 2830	.190 369	.192 6259	.697	.736 9977	.430 219	.183 2324
.648	.715 7173	.195 576	.192 4344	.698	.737 4320	.435 478	.183 0491
.649	.716 1516	.200 775	.192 2421	.699	.737 8663	.440 746	.182 8663
1.650	0.716 5859	5.206 080	0.192 0499	1.700	0.738 3006	5.473 947	0.182 6835
$\log(u^e)$	$\log(u^e)$	e^u	e^{-u}	$\log(u^e)$	$\log(u^e)$	e^u	e^{-u}

The Exponential.

x	$\log_e(x^e)$	e^x	e^{-x}	x	$\log_e(x^e)$	e^x	e^{-x}
1.700	0.728 3006	5.473 947	0.182 6815	1.750	0.760 0153	5.751 603	0.173 7730
1.701	0.728 7349	5.479 424	0.182 5009	1.751	0.760 4490	5.760 319	0.173 6003
1.702	0.729 1692	5.484 900	0.182 3195	1.752	0.760 8829	5.769 123	0.173 4267
1.703	0.729 6035	5.490 364	0.182 1373	1.753	0.761 3168	5.777 821	0.173 2534
1.704	0.730 0378	5.495 837	0.181 9542	1.754	0.761 7505	5.777 607	0.173 0802
1.705	0.730 4721	5.501 305	0.181 7724	1.755	0.762 1848	5.786 448	0.172 9072
1.706	0.730 9064	5.506 760	0.181 5907	1.756	0.762 6191	5.795 231	0.172 7344
1.707	0.731 3407	5.512 209	0.181 4092	1.757	0.763 0534	5.795 010	0.172 5618
1.708	0.731 7750	5.517 655	0.181 2270	1.758	0.763 4877	5.800 821	0.172 3891
1.709	0.732 2093	5.523 135	0.181 0457	1.759	0.763 9220	5.806 638	0.172 2170
1.710	0.732 6436	5.528 611	0.180 8638	1.760	0.764 3563	5.812 437	0.172 0449
1.711	0.733 0779	5.534 093	0.180 6820	1.761	0.764 7906	5.818 253	0.171 8729
1.712	0.733 5122	5.539 570	0.180 5004	1.762	0.765 2249	5.824 074	0.171 7011
1.713	0.733 9465	5.545 053	0.180 3189	1.763	0.765 6592	5.829 901	0.171 5295
1.714	0.734 3808	5.550 532	0.180 1378	1.764	0.766 0935	5.835 734	0.171 3581
1.715	0.734 8150	5.556 016	0.179 9567	1.765	0.766 5278	5.841 572	0.171 1868
1.716	0.735 2493	5.561 495	0.179 7748	1.766	0.766 9621	5.847 417	0.171 0157
1.717	0.735 6836	5.566 970	0.179 5932	1.767	0.767 3964	5.853 267	0.170 8448
1.718	0.736 1179	5.572 451	0.179 4116	1.768	0.767 8307	5.859 123	0.170 6739
1.719	0.736 5522	5.577 917	0.179 2303	1.769	0.768 2650	5.864 986	0.170 5034
1.720	0.736 9865	5.583 381	0.179 0489	1.770	0.768 6993	5.870 853	0.170 3330
1.721	0.737 4208	5.588 841	0.178 8672	1.771	0.769 1336	5.876 727	0.170 1627
1.722	0.737 8551	5.594 299	0.178 6858	1.772	0.769 5679	5.882 607	0.169 9927
1.723	0.738 2894	5.599 760	0.178 5043	1.773	0.770 0021	5.888 492	0.169 8228
1.724	0.738 7237	5.605 214	0.178 3231	1.774	0.770 4364	5.894 381	0.169 6530
1.725	0.739 1580	5.610 672	0.178 1421	1.775	0.770 8707	5.900 281	0.169 4834
1.726	0.739 5923	5.616 135	0.177 9609	1.776	0.771 3050	5.906 184	0.169 3141
1.727	0.740 0266	5.621 597	0.177 7797	1.777	0.771 7393	5.912 094	0.169 1448
1.728	0.740 4609	5.627 054	0.177 5983	1.778	0.772 1736	5.918 009	0.168 9758
1.729	0.740 8952	5.632 516	0.177 4168	1.779	0.772 6079	5.923 920	0.168 8069
1.730	0.741 3295	5.637 974	0.177 2354	1.780	0.773 0422	5.929 836	0.168 6381
1.731	0.741 7638	5.643 437	0.177 0542	1.781	0.773 4765	5.935 759	0.168 4696
1.732	0.742 1980	5.648 897	0.176 8730	1.782	0.773 9108	5.941 728	0.168 3014
1.733	0.742 6323	5.654 361	0.176 6914	1.783	0.774 3451	5.947 673	0.168 1330
1.734	0.743 0666	5.659 821	0.176 5107	1.784	0.774 7794	5.953 623	0.167 9649
1.735	0.743 5009	5.665 283	0.176 3292	1.785	0.775 2137	5.959 580	0.167 7971
1.736	0.743 9352	5.670 741	0.176 1476	1.786	0.775 6480	5.965 543	0.167 6293
1.737	0.744 3695	5.676 197	0.175 9658	1.787	0.776 0823	5.971 511	0.167 4618
1.738	0.744 8038	5.681 650	0.175 7841	1.788	0.776 5166	5.977 485	0.167 2944
1.739	0.745 2381	5.687 109	0.175 6020	1.789	0.776 9509	5.983 466	0.167 1272
1.740	0.745 6724	5.692 563	0.175 4204	1.790	0.777 3852	5.989 458	0.166 9602
1.741	0.746 1067	5.698 014	0.175 2388	1.791	0.777 8195	5.995 445	0.166 7933
1.742	0.746 5410	5.703 465	0.175 0569	1.792	0.778 2538	6.001 443	0.166 6266
1.743	0.746 9753	5.708 911	0.174 8750	1.793	0.778 6881	6.007 448	0.166 4600
1.744	0.747 4096	5.714 361	0.174 6937	1.794	0.779 1224	6.013 458	0.166 2937
1.745	0.747 8439	5.719 807	0.174 5120	1.795	0.779 5567	6.019 475	0.166 1275
1.746	0.748 2782	5.725 250	0.174 3304	1.796	0.779 9910	6.025 487	0.165 9614
1.747	0.748 7125	5.730 695	0.174 1488	1.797	0.780 4253	6.031 526	0.165 7955
1.748	0.749 1468	5.736 143	0.173 9672	1.798	0.780 8596	6.037 560	0.165 6298
1.749	0.749 5810	5.741 585	0.173 7858	1.799	0.781 2939	6.043 601	0.165 4643
1.750	0.750 0153	5.747 033	0.173 6042	1.800	0.781 7281	6.049 647	0.165 2989
$\log_e(x^e)$	$\log_e(x^e)$	e^x	e^{-x}	$\log_e(x^e)$	$\log_e(x^e)$	e^x	e^{-x}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
1.800	0.781 7301	6.039 617	0.165 2080	1.850	0.803 4418	6.339 810	0.157 2372
1.801	.782 1644	.055 700	.165 1337	1.851	.804 8791	.365 183	.157 0891
1.802	.782 5987	.061 730	.164 9680	1.852	.804 3134	.372 552	.156 9239
1.803	.783 0330	.067 824	.164 8037	1.853	.804 7477	.379 938	.156 7592
1.804	.783 4672	.073 895	.164 6390	1.854	.805 1820	.385 310	.156 5955
1.805	.783 9015	.079 971	.164 4745	1.855	.805 6163	.390 698	0.156 4320
1.806	.784 3358	.085 054	.164 3101	1.856	.806 0505	.396 013	.156 2686
1.807	.784 7701	.090 144	.164 1458	1.857	.806 4848	.401 404	.156 1053
1.808	.785 2044	.095 230	.163 9818	1.858	.806 9191	.406 802	.155 9413
1.809	.785 6387	.100 340	.163 8179	1.859	.807 3534	.412 216	.155 7784
1.810	.785 0730	.105 447	.163 6541	1.860	.807 7877	.417 637	.155 6156
1.811	.786 5073	.110 561	.163 4906	1.861	.808 2220	.423 061	.155 4530
1.812	.786 9416	.115 681	.163 3272	1.862	.808 6563	.428 497	.155 2905
1.813	.787 3759	.120 806	.163 1639	1.863	.809 0906	.433 937	.155 2063
1.814	.787 8102	.125 938	.163 0008	1.864	.809 5249	.439 383	.155 0512
1.815	.788 2445	.131 076	.162 8379	1.865	.809 9592	.444 835	.154 8962
1.816	.788 6788	.136 220	.162 6752	1.866	.810 3935	.450 295	.154 7414
1.817	.789 1131	.141 371	.162 5126	1.867	.810 8278	.455 761	.154 5867
1.818	.789 5474	.146 527	.162 3501	1.868	.811 2621	.461 233	.154 4322
1.819	.789 9817	.151 690	.162 1879	1.869	.811 6964	.466 711	.154 2779
1.820	.790 4160	.156 858	.162 0258	1.870	.812 1307	.472 195	.154 1237
1.821	.790 8503	.162 033	.161 8638	1.871	.812 5650	.477 686	.153 9696
1.822	.791 2845	.167 215	.161 7020	1.872	.813 0003	.483 183	.153 8157
1.823	.791 7188	.172 402	.161 5404	1.873	.813 4356	.488 687	.153 6620
1.824	.792 1531	.177 595	.161 3789	1.874	.813 8709	.494 197	.153 5084
1.825	.792 5874	.182 795	.161 2176	1.875	.814 3062	.499 713	.153 3550
1.826	.793 0217	.188 001	.161 0565	1.876	.814 7415	.505 234	.153 2017
1.827	.793 4560	.193 213	.160 8955	1.877	.815 1767	.510 761	.153 0486
1.828	.793 8903	.198 431	.160 7347	1.878	.815 6120	.516 294	.152 8956
1.829	.794 3246	.203 656	.160 5741	1.879	.816 0473	.521 833	.152 7428
1.830	.794 7589	.208 887	.160 4136	1.880	.816 4826	.527 378	.152 5901
1.831	.795 1932	.214 124	.160 2532	1.881	.816 9179	.532 929	.152 4376
1.832	.795 6275	.219 367	.160 0931	1.882	.817 3532	.538 486	.152 2852
1.833	.796 0618	.224 616	.159 9330	1.883	.817 7885	.544 049	.152 1330
1.834	.796 4961	.229 872	.159 7732	1.884	.818 2238	.549 617	.151 9810
1.835	.796 9304	.235 134	.159 6135	1.885	.818 6591	.555 191	.151 8291
1.836	.797 3647	.240 402	.159 4540	1.886	.819 0944	.560 771	.151 6772
1.837	.797 7990	.245 677	.159 2946	1.887	.819 5297	.566 356	.151 5255
1.838	.798 2333	.250 958	.159 1354	1.888	.819 9650	.571 947	.151 3741
1.839	.798 6676	.256 245	.158 9763	1.889	.820 4003	.577 543	.151 2230
1.840	.799 1019	.261 538	.158 8174	1.890	.820 8356	.583 145	.151 0718
1.841	.799 5362	.266 838	.158 6587	1.891	.821 2709	.588 753	.150 9209
1.842	.799 9705	.272 144	.158 5001	1.892	.821 7062	.594 367	.150 7700
1.843	.800 4047	.277 455	.158 3417	1.893	.822 1415	.599 987	.150 6193
1.844	.800 8390	.282 775	.158 1834	1.894	.822 5768	.605 612	.150 4687
1.845	.801 2733	.288 100	.158 0253	1.895	.823 0121	.611 243	.150 3183
1.846	.801 7076	.293 431	.157 8673	1.896	.823 4474	.616 880	.150 1681
1.847	.802 1419	.298 769	.157 7096	1.897	.823 8827	.622 523	.150 0180
1.848	.802 5762	.304 113	.157 5520	1.898	.824 3180	.628 172	.149 8681
1.849	.803 0105	.309 463	.157 3945	1.899	.824 7533	.633 827	.149 7183
1.850	.803 4448	.314 820	.157 2372	1.900	.825 1886	.639 488	.149 5686
$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	

IAN TABLE

The Exponential.

x	$\log_e(x^e)$	e^x	e^{-x}	x	$\log_e(x^e)$	e^x	e^{-x}
1.000	0.825 1205	6.085 831	0.143 0886	1.050	0.836 8742	7.068 688	0.142 2741
1.001	0.825 9118	6.092 581	0.142 1191	1.051	0.837 3085	7.075 740	0.142 1319
1.002	0.826 6981	6.099 280	0.141 2698	1.052	0.837 7428	7.082 792	0.142 0008
1.003	0.827 4844	6.105 982	0.140 4206	1.053	0.838 1771	7.089 845	0.141 8700
1.004	0.828 2707	6.112 684	0.139 5715	1.054	0.838 6114	7.096 899	0.141 7401
1.005	0.829 0570	6.119 386	0.138 7225	1.055	0.839 0457	7.103 953	0.141 6115
1.006	0.829 8433	6.126 088	0.137 8735	1.056	0.839 4800	7.110 958	0.141 4830
1.007	0.830 6296	6.132 790	0.137 0245	1.057	0.839 9143	7.117 963	0.141 3545
1.008	0.831 4159	6.139 492	0.136 1755	1.058	0.840 3486	7.124 968	0.141 2260
1.009	0.832 2022	6.146 194	0.135 3265	1.059	0.840 7829	7.131 973	0.141 0975
1.010	0.832 9885	6.152 896	0.134 4775	1.060	0.841 2172	7.138 978	0.140 9690
1.011	0.833 7748	6.159 598	0.133 6285	1.061	0.841 6515	7.145 983	0.140 8405
1.012	0.834 5611	6.166 300	0.132 7795	1.062	0.842 0858	7.152 988	0.140 7120
1.013	0.835 3474	6.172 998	0.131 9305	1.063	0.842 5201	7.159 993	0.140 5835
1.014	0.836 1337	6.179 696	0.131 0815	1.064	0.842 9544	7.166 998	0.140 4550
1.015	0.836 9199	6.186 394	0.130 2325	1.065	0.843 3887	7.173 998	0.140 3265
1.016	0.837 7062	6.193 092	0.129 3835	1.066	0.843 8230	7.180 998	0.140 1980
1.017	0.838 4925	6.199 790	0.128 5345	1.067	0.844 2573	7.187 998	0.140 0695
1.018	0.839 2788	6.206 488	0.127 6855	1.068	0.844 6916	7.194 998	0.139 9410
1.019	0.840 0651	6.213 186	0.126 8365	1.069	0.845 1259	7.201 998	0.139 8125
1.020	0.840 8514	6.219 884	0.125 9875	1.070	0.845 5602	7.208 998	0.139 6840
1.021	0.841 6377	6.226 582	0.125 1385	1.071	0.845 9945	7.215 998	0.139 5555
1.022	0.842 4240	6.233 280	0.124 2895	1.072	0.846 4288	7.222 998	0.139 4270
1.023	0.843 2103	6.239 978	0.123 4405	1.073	0.846 8631	7.229 998	0.139 2985
1.024	0.843 9966	6.246 676	0.122 5915	1.074	0.847 2974	7.236 998	0.139 1700
1.025	0.844 7829	6.253 374	0.121 7425	1.075	0.847 7317	7.243 998	0.139 0415
1.026	0.845 5692	6.260 072	0.120 8935	1.076	0.848 1660	7.250 998	0.138 9130
1.027	0.846 3555	6.266 770	0.120 0445	1.077	0.848 6003	7.257 998	0.138 7845
1.028	0.847 1418	6.273 468	0.119 1955	1.078	0.849 0346	7.264 998	0.138 6560
1.029	0.847 9281	6.280 166	0.118 3465	1.079	0.849 4689	7.271 998	0.138 5275
1.030	0.848 7144	6.286 864	0.117 4975	1.080	0.849 9032	7.278 998	0.138 3990
1.031	0.849 5007	6.293 562	0.116 6485	1.081	0.850 3375	7.285 998	0.138 2705
1.032	0.850 2870	6.300 260	0.115 7995	1.082	0.850 7718	7.292 998	0.138 1420
1.033	0.851 0733	6.306 958	0.114 9505	1.083	0.851 2061	7.300 000	0.138 0135
1.034	0.851 8596	6.313 656	0.114 1015	1.084	0.851 6404	7.306 998	0.137 8850
1.035	0.852 6459	6.320 354	0.113 2525	1.085	0.852 0747	7.313 998	0.137 7565
1.036	0.853 4322	6.327 052	0.112 4035	1.086	0.852 5090	7.320 998	0.137 6280
1.037	0.854 2185	6.333 750	0.111 5545	1.087	0.852 9433	7.327 998	0.137 4995
1.038	0.855 0048	6.340 448	0.110 7055	1.088	0.853 3776	7.334 998	0.137 3710
1.039	0.855 7911	6.347 146	0.109 8565	1.089	0.853 8119	7.341 998	0.137 2425
1.040	0.856 5774	6.353 844	0.109 0075	1.090	0.854 2462	7.348 998	0.137 1140
1.041	0.857 3637	6.360 542	0.108 1585	1.091	0.854 6805	7.355 998	0.136 9855
1.042	0.858 1500	6.367 240	0.107 3095	1.092	0.855 1148	7.362 998	0.136 8570
1.043	0.858 9363	6.373 938	0.106 4605	1.093	0.855 5491	7.369 998	0.136 7285
1.044	0.859 7226	6.380 636	0.105 6115	1.094	0.855 9834	7.376 998	0.136 6000
1.045	0.860 5089	6.387 334	0.104 7625	1.095	0.856 4177	7.383 998	0.136 4715
1.046	0.861 2952	6.394 032	0.103 9135	1.096	0.856 8520	7.390 998	0.136 3430
1.047	0.862 0815	6.400 730	0.103 0645	1.097	0.857 2863	7.397 998	0.136 2145
1.048	0.862 8678	6.407 428	0.102 2155	1.098	0.857 7206	7.404 998	0.136 0860
1.049	0.863 6541	6.414 126	0.101 3665	1.099	0.858 1549	7.411 998	0.135 9575
1.050	0.864 4404	6.420 824	0.100 5175	2.000	0.868 9890	7.389 096	0.135 3353
1.051	0.865 2267	6.427 522	0.099 6685				
1.052	0.866 0130	6.434 220	0.098 8195				
1.053	0.866 7993	6.440 918	0.097 9705				
1.054	0.867 5856	6.447 616	0.097 1215				
1.055	0.868 3719	6.454 314	0.096 2725				
1.056	0.869 1582	6.461 012	0.095 4235				
1.057	0.869 9445	6.467 710	0.094 5745				
1.058	0.870 7308	6.474 408	0.093 7255				
1.059	0.871 5171	6.481 106	0.092 8765				
1.060	0.872 3034	6.487 804	0.092 0275				
1.061	0.873 0897	6.494 502	0.091 1785				
1.062	0.873 8760	6.501 200	0.090 3295				
1.063	0.874 6623	6.507 898	0.089 4805				
1.064	0.875 4486	6.514 596	0.088 6315				
1.065	0.876 2349	6.521 294	0.087 7825				
1.066	0.877 0212	6.527 992	0.086 9335				
1.067	0.877 8075	6.534 690	0.086 0845				
1.068	0.878 5938	6.541 388	0.085 2355				
1.069	0.879 3801	6.548 086	0.084 3865				
1.070	0.880 1664	6.554 784	0.083 5375				
1.071	0.880 9527	6.561 482	0.082 6885				
1.072	0.881 7390	6.568 180	0.081 8395				
1.073	0.882 5253	6.574 878	0.080 9905				
1.074	0.883 3116	6.581 576	0.080 1415				
1.075	0.884 0979	6.588 274	0.079 2925				
1.076	0.884 8842	6.594 972	0.078 4435				
1.077	0.885 6705	6.601 670	0.077 5945				
1.078	0.886 4568	6.608 368	0.076 7455				
1.079	0.887 2431	6.615 066	0.075 8965				
1.080	0.888 0294	6.621 764	0.075 0475				
1.081	0.888 8157	6.628 462	0.074 1985				
1.082	0.889 6020	6.635 160	0.073 3495				
1.083	0.890 3883	6.641 858	0.072 5005				
1.084	0.891 1746	6.648 556	0.071 6515				
1.085	0.891 9609	6.655 254	0.070 8025				
1.086	0.892 7472	6.661 952	0.070 0000				
1.087	0.893 5335	6.668 650	0.069 1975				
1.088	0.894 3198	6.675 348	0.068 3950				
1.089	0.895 1061	6.682 046	0.067 5925				
1.090	0.895 8924	6.688 744	0.066 7900				
1.091	0.896 6787	6.695 442	0.065 9875				
1.092	0.897 4650	6.702 140	0.065 1850				
1.093	0.898 2513	6.708 838	0.064 3825				
1.094	0.899 0376	6.715 536	0.063 5800				
1.095	0.899 8239	6.722 234	0.062 7775				
1.096	0.900 6102	6.728 932	0.061 9750				
1.097	0.901 3965	6.735 630	0.061 1725				
1.098	0.902 1828	6.742 328	0.060 3700				
1.099	0.902 9691	6.749 026	0.059 5675				
1.100	0.903 7554	6.755 724	0.058 7650				

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
2.000	0.868 5890	7.389 066	0.135 3353	2.050	0.890 2037	7.707 091	0.131 7123
.001	.869 0213	.740 449	.135 2000	.051	.891 2350	.775 573	.128 6662
.002	.869 4526	.741 810	.135 0649	.052	.891 7713	.783 452	.128 4772
.003	.869 8838	.743 157	.134 9300	.053	.892 3076	.791 330	.128 2873
.004	.870 3151	.744 497	.134 7950	.054	.892 8439	.799 205	.128 2410
2.005	0.870 7601	7.426 091	0.131 6603	2.055	0.892 4752	7.866 848	0.128 0928
.005	.871 1947	.743 521	.131 5257	.055	.893 0115	.801 130	.127 9948
.006	.871 6290	.744 901	.131 3912	.056	.893 5477	.809 197	.127 8969
.007	.872 0633	.746 266	.131 2569	.057	.894 0839	.817 261	.127 7991
.008	.872 4976	.747 625	.131 1227	.058	.894 6201	.825 328	.127 6995
2.010	0.872 9419	7.463 317	0.133 6887	2.060	0.894 6966	7.813 070	0.127 4540
.011	.873 3762	.749 284	.133 5538	.061	.895 2329	.833 353	.127 3561
.012	.873 8105	.750 290	.133 4190	.062	.895 7692	.841 427	.127 2582
.013	.874 2448	.751 291	.133 2843	.063	.896 3055	.849 501	.127 1603
.014	.874 6791	.752 280	.133 1496	.064	.896 8418	.857 574	.127 0624
2.015	0.875 1234	7.500 727	0.133 3304	2.065	0.897 3781	7.886 248	0.126 8182
.016	.875 5577	.750 832	.133 1957	.065	.897 9144	.865 652	.126 7203
.017	.875 9920	.751 834	.133 0610	.066	.898 4507	.873 726	.126 6224
.018	.876 4263	.752 833	.132 9263	.067	.898 9870	.881 799	.126 5245
.019	.876 8606	.753 830	.132 7916	.068	.899 5233	.889 873	.126 4266
2.020	0.877 2749	7.538 315	0.132 5555	2.070	0.899 5996	7.921 232	0.126 1765
.021	.877 7092	.754 837	.132 4208	.069	.900 1359	.897 945	.126 0786
.022	.878 1434	.755 837	.132 2861	.070	.900 6722	.906 019	.125 9807
.023	.878 5777	.756 836	.132 1514	.071	.901 2085	.914 093	.125 8828
.024	.879 0120	.757 835	.132 0167	.072	.901 7448	.922 167	.125 7849
2.025	0.879 4563	7.576 111	0.131 9018	2.075	0.902 3111	7.969 547	0.125 5361
.026	.879 8906	.758 831	.131 7671	.073	.902 8474	.930 240	.125 4382
.027	.880 3249	.760 831	.131 6324	.074	.903 3837	.938 314	.125 3403
.028	.880 7592	.761 831	.131 4977	.075	.903 9200	.946 388	.125 2424
.029	.881 1935	.762 830	.131 3630	.076	.904 4563	.954 462	.125 1445
2.030	0.881 6378	7.614 686	0.131 3355	2.080	0.904 9926	8.000 399	0.124 8952
.031	.882 0721	.762 831	.131 2008	.081	.905 5289	.962 572	.124 7973
.032	.882 5064	.763 830	.131 0661	.082	.906 0652	.970 646	.124 6994
.033	.882 9407	.764 830	.130 9314	.083	.906 6015	.978 720	.124 6015
.034	.883 3750	.765 830	.130 7967	.084	.907 1378	.986 794	.124 5036
2.035	0.883 8193	7.652 252	0.130 6805	2.085	0.907 6741	8.044 591	0.124 3541
.036	.884 2536	.766 830	.130 5458	.085	.908 2104	.994 868	.124 2562
.037	.884 6879	.767 830	.130 4111	.086	.908 7467	.100 942	.124 1583
.038	.885 1222	.768 830	.130 2764	.087	.909 2830	.108 016	.124 0604
.039	.885 5565	.769 830	.130 1417	.088	.909 8193	.116 090	.123 9625
2.040	0.885 9908	7.690 600	0.130 0287	2.090	0.910 3556	8.084 015	0.123 8131
.041	.886 4251	.770 830	.129 8940	.089	.910 8919	.124 164	.123 7152
.042	.886 8594	.771 830	.129 7593	.090	.911 4282	.132 238	.123 6173
.043	.887 2937	.772 830	.129 6246	.091	.911 9645	.140 312	.123 5194
.044	.887 7280	.773 830	.129 4899	.092	.912 5008	.148 386	.123 4215
2.045	0.888 1723	7.720 180	0.129 3802	2.095	0.913 0371	8.125 411	0.123 2720
.046	.888 6066	.773 830	.129 2455	.093	.913 5734	.156 460	.123 1741
.047	.889 0409	.774 830	.129 1108	.094	.914 1097	.164 534	.123 0762
.048	.889 4752	.775 830	.128 9761	.095	.914 6460	.172 608	.122 9783
.049	.889 9095	.776 830	.128 8414	.096	.915 1823	.180 682	.122 8804
2.050	0.890 3538	7.767 501	0.128 7349	2.100	0.915 7186	8.166 170	0.122 7309

IAN TABLE

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
2.100	0.012 0181	8.166 170	0.122 4564	2.150	0.033 7331	8.584 868	0.116 4832
.101	.012 4527	.174 340	.122 3310	.151	.034 1674	.523 448	.116 3677
.102	.012 8870	.384 580	.122 2118	.152	.034 6017	.602 045	.116 2514
.103	.013 3213	.800 705	.122 0886	.153	.035 0360	.680 682	.116 1352
.104	.013 7556	1.682 900	.121 9676	.154	.035 4703	.769 269	.116 0192
2.105	0.014 1899	8.207 303	0.121 8457	2.155	0.035 9046	8.627 890	0.115 8932
.106	.014 6242	.215 314	.121 7239	.156	.036 3389	.639 522	.115 7873
.107	.015 0585	.442 531	.121 6032	.157	.036 7732	.645 163	.115 6716
.108	.015 4928	.931 704	.121 4807	.158	.037 2075	.653 803	.115 5560
.109	.015 9271	2.00 967	.121 3593	.159	.037 6418	.662 471	.115 4405
2.110	0.016 3614	8.248 241	0.121 2380	2.160	0.038 0761	8.671 134	0.115 3251
.111	.016 7957	.251 324	.121 1168	.161	.038 5104	.679 813	.115 2099
.112	.017 2300	.504 753	.120 9957	.162	.038 9447	.688 497	.115 0947
.113	.017 6642	.973 023	.120 8748	.163	.039 3790	.697 190	.114 9797
.114	.018 0985	2.01 300	.120 7540	.164	.039 8133	.705 894	.114 8647
2.115	0.018 5328	8.289 586	0.120 6333	2.165	0.040 2476	8.714 603	0.114 7499
.116	.018 9671	.267 879	.120 5127	.166	.040 6819	.713 321	.114 6352
.117	.019 4014	.536 181	.120 3923	.167	.041 1161	.722 049	.114 5207
.118	.019 8357	1.14 462	.120 2719	.168	.041 5504	.730 785	.114 4062
.119	.019 2700	2.32 811	.120 1517	.169	.041 9847	.739 530	.114 2919
2.120	0.020 7043	8.331 137	0.120 0316	2.170	0.042 4190	8.758 281	0.114 1776
.121	.021 1386	.330 473	.119 9107	.171	.042 8533	.747 247	.114 0635
.122	.021 5729	.647 816	.119 7900	.172	.043 2876	.755 938	.113 9495
.123	.022 0072	1.36 168	.119 6721	.173	.043 7219	.764 656	.113 8358
.124	.022 4415	2.84 589	.119 5545	.174	.044 1562	.773 387	.113 7218
2.125	0.022 8758	8.372 807	0.119 4339	2.175	0.044 5905	8.802 185	0.113 6082
.126	.023 3101	.381 275	.119 3136	.176	.045 0248	.782 052	.113 4949
.127	.023 7444	.760 660	.119 1933	.177	.045 4591	.790 867	.113 3812
.128	.024 1787	1.58 051	.119 0752	.178	.045 8934	.800 691	.113 2678
.129	.024 6130	3.06 450	.118 9592	.179	.046 3277	.810 493	.113 1546
2.130	0.025 0472	8.414 167	0.118 8373	2.180	0.046 7620	8.846 306	0.113 0415
.131	.025 4815	.421 480	.118 7186	.181	.047 1963	.820 157	.112 9285
.132	.025 9158	.841 713	.118 6009	.182	.047 6306	.829 017	.112 8157
.133	.026 3501	1.68 549	.118 4853	.183	.048 0649	.837 885	.112 7029
.134	.026 7844	3.38 591	.118 3699	.184	.048 4991	.846 762	.112 5903
2.135	0.027 2187	8.457 047	0.118 2496	2.185	0.048 9334	8.890 649	0.112 4777
.136	.027 6530	.465 808	.118 1294	.186	.049 3677	.855 514	.112 3653
.137	.028 0873	.933 078	.118 0093	.187	.049 8020	.864 418	.112 2530
.138	.028 5216	1.86 456	.117 8901	.188	.049 2363	.873 356	.112 1408
.139	.028 9559	3.69 912	.117 7720	.189	.049 6706	.882 322	.112 0287
2.140	0.029 3902	8.499 438	0.117 6548	2.190	0.050 1049	8.935 213	0.111 9167
.141	.030 3245	.507 911	.117 5372	.191	.050 5392	.891 153	.111 8049
.142	.030 7588	1.016 454	.117 4198	.192	.050 9735	.897 101	.111 6931
.143	.031 1931	2.034 073	.117 3024	.193	.051 4078	.903 059	.111 5813
.144	.031 6274	4.063 203	.117 1852	.194	.051 8421	.909 030	.111 4700
2.145	0.032 0617	8.542 011	0.117 0680	2.195	0.052 2764	8.980 001	0.111 3585
.146	.032 4960	.550 588	.116 9510	.196	.052 7107	.915 081	.111 2473
.147	.032 9303	1.099 144	.116 8341	.197	.053 1450	.920 979	.111 1361
.148	.033 3646	2.197 706	.116 7174	.198	.053 5793	.926 892	.111 0250
.149	.033 7989	4.376 278	.116 6007	.199	.054 0136	.932 813	.110 9140
2.150	0.034 2331	8.584 858	0.116 4842	2.200	0.054 4479	9.025 013	0.110 8032
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
2.300	0.955 1179	9.625 041	0.110 8452	2.250	0.977 0636	9.497 781	0.105 3992
2.301	0.955 2824	9.631 041	0.110 6624	2.251	0.977 2690	9.502 258	0.105 2191
2.302	0.955 3164	9.633 082	0.110 5808	2.252	0.977 4312	9.506 720	0.105 0486
2.303	0.955 7297	9.635 120	0.110 4791	2.253	0.978 3755	9.510 242	0.104 8815
2.304	0.957 1890	9.641 180	0.110 3608	2.254	0.978 8208	9.515 294	0.104 7085
2.305	0.957 6103	9.640 252	0.110 2505	2.255	0.979 3114	9.515 294	0.104 5735
2.306	0.958 0530	9.639 326	0.110 1404	2.256	0.979 2681	9.514 844	0.104 4487
2.307	0.958 4870	9.638 410	0.110 0302	2.257	0.980 2020	9.514 354	0.104 3240
2.308	0.958 9422	9.637 504	0.109 9201	2.258	0.980 6390	9.514 912	0.104 1993
2.309	0.959 3955	9.636 605	0.109 8103	2.259	0.981 0712	9.514 511	0.104 0746
2.310	0.959 7608	9.635 716	0.109 7006	2.260	0.981 5055	9.514 089	0.103 9495
2.311	0.960 3281	9.634 847	0.109 5910	2.261	0.981 9408	9.513 677	0.103 8247
2.312	0.960 6911	9.633 936	0.109 4815	2.262	0.982 3718	9.513 275	0.103 7000
2.313	0.961 0337	9.633 105	0.109 3720	2.263	0.982 8081	9.512 881	0.103 5753
2.314	0.961 5280	9.632 262	0.109 2627	2.264	0.983 2427	9.512 498	0.103 4506
2.315	0.961 6613	9.631 400	0.109 1535	2.265	0.983 6720	9.512 125	0.103 3259
2.316	0.962 3594	9.630 575	0.109 0444	2.266	0.984 1114	9.511 701	0.103 2012
2.317	0.962 8390	9.629 780	0.108 9351	2.267	0.984 5150	9.511 286	0.103 0765
2.318	0.963 2524	9.628 915	0.108 8265	2.268	0.984 9700	9.510 891	0.102 9518
2.319	0.963 6995	9.628 128	0.108 7178	2.269	0.985 4152	9.510 526	0.102 8271
2.320	0.964 1337	9.627 331	0.108 6091	2.270	0.985 8495	9.510 101	0.102 7024
2.321	0.964 5880	9.626 543	0.108 5006	2.271	0.986 2848	9.509 685	0.102 5777
2.322	0.965 0021	9.625 764	0.108 3921	2.272	0.986 7171	9.509 270	0.102 4530
2.323	0.965 4760	9.624 894	0.108 2838	2.273	0.987 1514	9.508 854	0.102 3283
2.324	0.965 8790	9.624 134	0.108 1755	2.274	0.987 5857	9.508 439	0.102 2036
2.325	0.966 3952	9.623 483	0.108 0674	2.275	0.988 0300	9.508 024	0.102 0789
2.326	0.966 7305	9.622 731	0.107 9591	2.276	0.988 4542	9.507 609	0.101 9542
2.327	0.967 1738	9.622 008	0.107 8515	2.277	0.988 8885	9.507 194	0.101 8295
2.328	0.967 6081	9.621 285	0.107 7437	2.278	0.989 3128	9.506 779	0.101 7048
2.329	0.968 0424	9.620 571	0.107 6360	2.279	0.989 7371	9.506 364	0.101 5801
2.330	0.968 4767	9.620 866	0.107 5284	2.280	0.990 1614	9.505 949	0.101 4554
2.331	0.968 9110	9.620 171	0.107 4210	2.281	0.990 6257	9.505 534	0.101 3307
2.332	0.969 3453	9.619 481	0.107 3136	2.282	0.991 0400	9.505 119	0.101 2060
2.333	0.969 7796	9.618 788	0.107 2062	2.283	0.991 4943	9.504 704	0.101 0813
2.334	0.970 2139	9.618 100	0.107 0988	2.284	0.991 9386	9.504 289	0.100 9566
2.335	0.970 6482	9.617 402	0.106 9921	2.285	0.992 3829	9.503 874	0.100 8319
2.336	0.971 0825	9.616 713	0.106 8852	2.286	0.992 8272	9.503 459	0.100 7072
2.337	0.971 5168	9.616 011	0.106 7781	2.287	0.993 2715	9.503 044	0.100 5825
2.338	0.971 9511	9.615 313	0.106 6716	2.288	0.993 7158	9.502 629	0.100 4578
2.339	0.972 3853	9.614 613	0.106 5650	2.289	0.994 1601	9.502 214	0.100 3331
2.340	0.972 8196	9.613 911	0.106 4585	2.290	0.994 6044	9.501 799	0.100 2084
2.341	0.973 2539	9.613 210	0.106 3521	2.291	0.995 0487	9.501 384	0.100 0837
2.342	0.973 6882	9.612 512	0.106 2458	2.292	0.995 4930	9.500 969	0.099 9590
2.343	0.974 1225	9.611 814	0.106 1395	2.293	0.995 9373	9.500 554	0.099 8343
2.344	0.974 5568	9.611 116	0.106 0333	2.294	0.996 3816	9.500 139	0.099 7096
2.345	0.974 9911	9.610 416	0.105 9275	2.295	0.996 8259	9.500 724	0.099 5849
2.346	0.975 4254	9.609 711	0.105 8217	2.296	0.997 2702	9.500 309	0.099 4602
2.347	0.975 8597	9.609 015	0.105 7150	2.297	0.997 7145	9.500 894	0.099 3355
2.348	0.976 2940	9.608 319	0.105 6082	2.298	0.998 1588	9.500 479	0.099 2108
2.349	0.976 7283	9.607 623	0.105 5017	2.299	0.998 6031	9.500 064	0.099 0861
2.350	0.977 1626	9.606 927	0.105 3952	2.300	0.999 0474	9.499 649	0.098 9614
				2.301	0.999 4917	9.499 234	0.098 8367
				2.302	0.999 9360	9.498 819	0.098 7120
				2.303	1.000 3803	9.498 404	0.098 5873
				2.304	1.000 8246	9.497 989	0.098 4626
				2.305	1.001 2689	9.497 574	0.098 3379
				2.306	1.001 7132	9.497 159	0.098 2132
				2.307	1.002 1575	9.496 744	0.098 0885
				2.308	1.002 6018	9.496 329	0.097 9638
				2.309	1.003 0461	9.495 914	0.097 8391
				2.310	1.003 4904	9.495 499	0.097 7144
				2.311	1.003 9347	9.495 084	0.097 5897
				2.312	1.004 3790	9.494 669	0.097 4650
				2.313	1.004 8233	9.494 254	0.097 3403
				2.314	1.005 2676	9.493 839	0.097 2156
				2.315	1.005 7119	9.493 424	0.097 0909
				2.316	1.006 1562	9.493 009	0.096 9662
				2.317	1.006 6005	9.492 594	0.096 8415
				2.318	1.007 0448	9.492 179	0.096 7168
				2.319	1.007 4891	9.491 764	0.096 5921
				2.320	1.007 9334	9.491 349	0.096 4674
				2.321	1.008 3777	9.490 934	0.096 3427
				2.322	1.008 8220	9.490 519	0.096 2180
				2.323	1.009 2663	9.490 104	0.096 0933
				2.324	1.009 7106	9.489 689	0.095 9686
				2.325	1.010 1549	9.489 274	0.095 8439
				2.326	1.010 5992	9.488 859	0.095 7192
				2.327	1.011 0435	9.488 444	0.095 5945
				2.328	1.011 4878	9.488 029	0.095 4698
				2.329	1.011 9321	9.487 614	0.095 3451
				2.330	1.012 3764	9.487 199	0.095 2204
				2.331	1.012 8207	9.486 784	0.095 0957
				2.332	1.013 2650	9.486 369	0.094 9710
				2.333	1.013 7093	9.485 954	0.094 8463
				2.334	1.014 1536	9.485 539	0.094 7216
				2.335	1.014 5979	9.485 124	0.094 5969
				2.336	1.015 0422	9.484 709	0.094 4722
				2.337	1.015 4865	9.484 294	0.094 3475
				2.338	1.015 9308	9.483 879	0.094 2228
				2.339	1.016 3751	9.483 464	0.094 0981
				2.340	1.016 8194	9.483 049	0.093 9734
				2.341	1.017 2637	9.482 634	0.093 8487
				2.342	1.017 7080	9.482 219	0.093 7240
				2.343	1.018 1523	9.481 804	0.093 5993
				2.344	1.018 5966	9.481 389	0.093 4746
				2.345	1.019 0409	9.480 974	0.093 3499
				2.346	1.019 4852	9.480 559	0.093 2252
				2.347	1.019 9295	9.480 144	0.093 1005
				2.348	1.020 3738	9.479 729	0.092 9758
				2.349	1.020 8181	9.479 314	0.092 8511
				2.350	1.021 2624	9.478 899	0.092 7264

The Exponential

x	$\log_e(x^e)$	e^x	e^{-x}	x	$\log_e(x^e)$	e^x	e^{-x}
2.301	0.008 8773	9.474 181	0.100 2588	2.350	1.020 5020	10.485 570	0.005 3602
2.302	0.009 2110	9.881 162	0.100 1585	2.351	1.021 0263	10.500 001	0.005 2758
2.303	0.009 5450	10.311 151	0.100 0585	2.352	1.021 5506	10.515 562	0.005 1780
2.304	1.000 1812	10.764 150	0.099 9585	2.353	1.022 0749	10.531 374	0.005 0815
2.305	1.000 6145	11.241 150	0.099 8580	2.354	1.022 5992	10.547 501	0.004 9834
2.306	1.001 0488	11.742 178	0.099 7588	2.355	1.023 1235	10.563 840	0.004 8835
2.307	1.001 4831	12.267 207	0.099 6604	2.356	1.023 6478	10.580 392	0.004 7827
2.308	1.001 9174	12.816 217	0.099 5635	2.357	1.024 1721	10.597 166	0.004 6809
2.309	1.002 3517	13.389 260	0.099 4680	2.358	1.024 6964	10.614 163	0.004 5781
2.310	1.002 7860	13.986 355	0.099 3736	2.359	1.025 2207	10.631 395	0.004 4743
2.311	1.003 2203	14.607 425	0.099 2803	2.360	1.025 7450	10.648 862	0.004 3695
2.312	1.003 6546	15.253 501	0.099 1880	2.361	1.026 2693	10.666 564	0.004 2637
2.313	1.004 0889	15.925 534	0.099 0967	2.362	1.026 7936	10.684 500	0.004 1569
2.314	1.004 5231	16.624 603	0.099 0063	2.363	1.027 3179	10.702 670	0.004 0491
2.315	1.004 9574	17.350 714	0.098 9169	2.364	1.027 8422	10.721 084	0.003 9403
2.316	1.005 3917	18.104 923	0.098 8286	2.365	1.028 3665	10.739 742	0.003 8305
2.317	1.005 8260	18.887 553	0.098 7413	2.366	1.028 8908	10.758 744	0.003 7197
2.318	1.006 2603	19.699 151	0.098 6550	2.367	1.029 4151	10.778 090	0.003 6079
2.319	1.006 6946	20.540 394	0.098 5697	2.368	1.029 9394	10.797 780	0.003 4951
2.320	1.007 1289	21.412 774	0.098 4854	2.369	1.030 4637	10.817 814	0.003 3813
2.321	1.007 5632	22.316 794	0.098 4021	2.370	1.030 9880	10.838 202	0.003 2665
2.322	1.008 0000	23.253 151	0.098 3198	2.371	1.031 5123	10.858 944	0.003 1507
2.323	1.008 4388	24.222 460	0.098 2385	2.372	1.032 0366	10.880 050	0.003 0339
2.324	1.008 8791	25.225 327	0.098 1582	2.373	1.032 5609	10.901 420	0.002 9161
2.325	1.009 3204	26.262 480	0.098 0789	2.374	1.033 0852	10.923 064	0.002 7973
2.326	1.009 7637	27.334 680	0.097 9996	2.375	1.033 6095	10.944 984	0.002 6775
2.327	1.010 2090	28.442 181	0.097 9213	2.376	1.034 1338	10.967 190	0.002 5567
2.328	1.010 6553	29.585 640	0.097 8440	2.377	1.034 6581	10.989 622	0.002 4349
2.329	1.011 1026	30.765 217	0.097 7677	2.378	1.035 1824	11.012 390	0.002 3121
2.330	1.011 5509	31.981 551	0.097 6924	2.379	1.035 7067	11.035 494	0.002 1883
2.331	1.012 0002	33.234 301	0.097 6181	2.380	1.036 2310	11.058 944	0.002 0635
2.332	1.012 4505	34.524 118	0.097 5448	2.381	1.036 7553	11.082 740	0.001 9377
2.333	1.012 9018	35.851 651	0.097 4725	2.382	1.037 2796	11.106 892	0.001 8109
2.334	1.013 3541	37.216 551	0.097 4012	2.383	1.037 8039	11.131 300	0.001 6831
2.335	1.013 8074	38.619 460	0.097 3309	2.384	1.038 3282	11.156 064	0.001 5543
2.336	1.014 2617	40.061 051	0.097 2616	2.385	1.038 8525	11.181 194	0.001 4245
2.337	1.014 7170	41.541 901	0.097 1933	2.386	1.039 3768	11.206 590	0.001 2937
2.338	1.015 1733	43.062 681	0.097 1260	2.387	1.039 9011	11.232 252	0.001 1619
2.339	1.015 6306	44.624 051	0.097 0597	2.388	1.040 4254	11.258 180	0.001 0291
2.340	1.016 0889	46.226 681	0.096 9944	2.389	1.040 9497	11.284 384	0.000 8953
2.341	1.016 5482	47.870 151	0.096 9301	2.390	1.041 4740	11.310 914	0.000 7605
2.342	1.017 0085	49.554 217	0.096 8668	2.391	1.041 9983	11.337 860	0.000 6247
2.343	1.017 4698	51.278 551	0.096 8045	2.392	1.042 5226	11.365 232	0.000 4879
2.344	1.017 9321	53.043 701	0.096 7432	2.393	1.043 0469	11.392 940	0.000 3501
2.345	1.018 3954	54.849 401	0.096 6829	2.394	1.043 5712	11.421 084	0.000 2113
2.346	1.018 8597	56.696 301	0.096 6236	2.395	1.044 0955	11.449 574	0.000 0715
2.347	1.019 3250	58.584 151	0.096 5653	2.396	1.044 6198	11.478 510	0.000 0217
2.348	1.019 7913	60.512 601	0.096 5080	2.397	1.045 1441	11.507 892	0.000 0019
2.349	1.020 2586	62.481 401	0.096 4517	2.398	1.045 6684	11.537 720	0.000 0001
2.350	1.020 7269	64.491 301	0.096 3964	2.399	1.046 1927	11.568 004	0.000 0000
2.351	1.021 1962	66.542 151	0.096 3421	2.400	1.046 7170	11.598 744	0.000 0000
2.352	1.021 6665	68.633 601	0.096 2888	2.401	1.047 2413	11.629 940	0.000 0000
2.353	1.022 1378	70.765 401	0.096 2365	2.402	1.047 7656	11.661 592	0.000 0000
2.354	1.022 6091	72.938 301	0.096 1852	2.403	1.048 2899	11.693 700	0.000 0000
2.355	1.023 0814	75.162 151	0.096 1349	2.404	1.048 8142	11.726 264	0.000 0000
2.356	1.023 5547	77.427 601	0.096 0856	2.405	1.049 3385	11.759 284	0.000 0000
2.357	1.024 0290	79.734 501	0.096 0373	2.406	1.049 8628	11.792 760	0.000 0000
2.358	1.024 5043	82.082 601	0.095 9899	2.407	1.050 3871	11.826 692	0.000 0000
2.359	1.024 9806	84.471 701	0.095 9436	2.408	1.050 9114	11.861 080	0.000 0000
2.360	1.025 4569	86.902 601	0.095 8983	2.409	1.051 4357	11.895 932	0.000 0000
2.361	1.025 9342	89.375 151	0.095 8539	2.410	1.051 9600	11.931 248	0.000 0000
2.362	1.026 4125	91.889 151	0.095 8105	2.411	1.052 4843	11.967 028	0.000 0000
2.363	1.026 8918	94.444 401	0.095 7680	2.412	1.053 0086	12.003 272	0.000 0000
2.364	1.027 3721	97.040 701	0.095 7265	2.413	1.053 5329	12.039 980	0.000 0000
2.365	1.027 8534	99.678 001	0.095 6860	2.414	1.054 0572	12.077 152	0.000 0000
2.366	1.028 3357	102.356 151	0.095 6465	2.415	1.054 5815	12.114 788	0.000 0000
2.367	1.028 8190	105.075 001	0.095 6080	2.416	1.055 1058	12.152 888	0.000 0000
2.368	1.029 3033	107.834 301	0.095 5705	2.417	1.055 6301	12.191 452	0.000 0000
2.369	1.029 7886	110.634 001	0.095 5340	2.418	1.056 1544	12.230 480	0.000 0000
2.370	1.030 2749	113.474 151	0.095 4985	2.419	1.056 6787	12.269 972	0.000 0000
2.371	1.030 7622	116.354 701	0.095 4640	2.420	1.057 2030	12.310 000	0.000 0000
2.372	1.031 2505	119.275 601	0.095 4305	2.421	1.057 7273	12.350 564	0.000 0000
2.373	1.031 7398	122.237 801	0.095 3980	2.422	1.058 2516	12.391 612	0.000 0000
2.374	1.032 2301	125.241 301	0.095 3665	2.423	1.058 7759	12.433 144	0.000 0000
2.375	1.032 7214	128.286 101	0.095 3360	2.424	1.059 3002	12.475 160	0.000 0000
2.376	1.033 2137	131.372 201	0.095 3065	2.425	1.059 8245	12.517 660	0.000 0000
2.377	1.033 7070	134.499 601	0.095 2780	2.426	1.060 3488	12.560 644	0.000 0000
2.378	1.034 2013	137.668 301	0.095 2505	2.427	1.060 8731	12.604 112	0.000 0000
2.379	1.034 6966	140.878 401	0.095 2240	2.428	1.061 3974	12.648 064	0.000 0000
2.380	1.035 1929	144.129 901	0.095 1985	2.429	1.061 9217	12.692 500	0.000 0000
2.381	1.035 6902	147.422 901	0.095 1740	2.430	1.062 4460	12.737 420	0.000 0000
2.382	1.036 1885	150.757 401	0.095 1505	2.431	1.062 9703	12.782 832	0.000 0000
2.383	1.036 6878	154.134 401	0.095 1280	2.432	1.063 4946	12.828 736	0.000 0000
2.384	1.037 1881	157.552 901	0.095 1065	2.433	1.064 0189	12.875 132	0.000 0000
2.385	1.037 6894	161.013 001	0.095 0860	2.434	1.064 5432	12.922 020	0.000 0000
2.386	1.038 1917	164.515 601	0.095 0665	2.435	1.065 0675	12.969 400	0.000 0000
2.387	1.038 6950	168.060 701	0.095 0480	2.436	1.065 5918	13.017 272	0.000 0000
2.388	1.039 1993	171.648 301	0.095 0305	2.437	1.066 1161	13.065 636	0.000 0000
2.389	1.039 7046	175.278 401	0.095 0140	2.438	1.066 6404	13.114 500	0.000 0000
2.390	1.040 2109	178.950 901	0.094 9985	2.439	1.067 1647	13.163 864	0.000 0000
2.391	1.040 7182	182.665 901	0.094 9840	2.440	1.067 6890	13.213 728	0.000 0000
2.392	1.041 2265	186.423 401	0.094 9705	2.441	1.068 2133	13.264 092	0.000 0000
2.393	1.041 7358	190.223 401	0.094 9580	2.442	1.068 7376	13.314 956	0.000 0000
2.394	1.042 2461	194.065 901	0.094 9465	2.443	1.069 2619	13.366 320	0.000 0000
2.395	1.042 7574	197.950 901	0.094 9360	2.444	1.069 7862	13.418 184	0.000 0000
2.396	1.043 2697	201.878 401	0.094 9265	2.445	1.070 3105	13.470 548	0.000 0000
2.397	1.043 7830	205.848 401	0.094 9180	2.446	1.070 8348	13.523 412	0.000 0000
2.398	1.044 2973	209.860 901	0.094 9105	2.447	1.071 3591	13.576 776	0.000 0000
2.399	1.044 8126	213.915 901	0.094 9040	2.448	1.071 8834	13.630 640	0.000 0000
2.400	1.045 3289	218.013 401	0.094 8985	2.449	1.072 4077	13.685 004	0.000 0000
2.401	1.045 8462	222.153 401	0.094 8940	2.450	1.072 9320	13.739 868	0.000 0000
2.402	1.046 3645	226.335 901	0.094 8905	2.451	1.073 4563	13.795 232	0.000 0000
2.403	1.046 8838	230.560 901	0.094 8880	2.452	1.073 9806	13.851 096	0.000 0000
2.404	1.047 4041	234.828 401	0.094 8865	2.453	1.074 5049	13.907 460	0.000 0000
2.405	1.047 9254	239.138 401	0.094 8860	2.454	1.075 0292	13.964 324	0.000 0000
2.406	1.048 4477	243.490 901	0.094 8865	2.455	1.075 5535	14.021 688	0.000

The Exponential.

n	$\log_{10}(e^n)$	e^n	e^{-n}	n	$\log_{10}(e^n)$	e^n	e^{-n}
2.400	1.042 3668	11.021 176	0.090 7180	2.450	1.064 0215	11.581 347	0.086 5036
.401	.012 7111	.031 .085	.030 6274	.451	.064 4558	.599 934	.086 2073
.402	.013 1753	.015 .215	.009 5307	.452	.064 8801	.611 347	.086 1212
.403	.013 6400	.020 240	.008 4162	.453	.065 3114	.623 164	.086 0351
.404	.014 1049	.027 357	.007 3593	.454	.065 7397	.635 203	.085 9491
2.405	1.044 4783	11.098 430	0.090 2655	2.455	1.066 0600	11.696 314	0.085 8532
.406	.014 6125	.031 514	.006 1754	.456	.066 4752	.648 680	.085 7574
.407	.015 1108	.040 661	.005 0851	.457	.066 8915	.662 730	.085 6616
.408	.015 5811	.051 715	.004 0151	.458	.067 3088	.677 435	.085 5660
.409	.016 0554	.064 833	.003 0652	.459	.067 7261	.692 113	.085 4704
2.410	1.046 6107	11.133 561	0.089 8153	2.460	1.068 0614	11.791 342	0.085 3749
.411	.017 0810	.075 801	.002 7453	.461	.068 4787	.710 532	.085 2793
.412	.017 5103	.090 251	.002 6153	.462	.068 8960	.726 215	.085 1837
.413	.017 9526	.017 413	.002 5461	.463	.069 3093	.743 690	.085 0881
.414	.018 3869	.023 581	.002 4368	.464	.069 7226	.754 725	.085 0029
2.415	1.048 8212	11.180 720	0.089 3173	2.465	1.070 5199	11.791 342	0.085 0080
.416	.019 3555	.030 960	.002 2780	.466	.070 9302	.775 257	.084 9131
.417	.019 8088	.038 172	.002 1888	.467	.071 3415	.797 091	.084 8182
.418	.019 1241	.047 300	.002 0996	.468	.071 7528	.821 835	.084 7233
.419	.020 5584	.059 619	.002 0106	.469	.072 1641	.848 639	.084 6284
2.420	1.050 9246	11.245 897	0.088 8216	2.470	1.072 7074	11.825 412	0.084 5335
.421	.021 1290	.075 111	.001 8347	.471	.073 1187	.874 575	.084 4386
.422	.021 5812	.090 213	.001 7450	.472	.073 5260	.899 115	.084 3437
.423	.022 0355	.019 068	.001 6551	.473	.073 9333	.925 979	.084 2488
.424	.022 4908	.029 933	.001 5656	.474	.074 3415	.954 811	.084 1539
2.425	1.053 1613	11.302 230	0.088 3281	2.475	1.074 3938	11.880 707	0.084 0590
.426	.023 5284	.033 537	.001 4802	.476	.074 7513	.984 505	.083 9641
.427	.024 0127	.043 857	.001 3913	.477	.075 1588	.995 111	.083 8692
.428	.024 5109	.054 189	.001 3131	.478	.075 5663	.997 366	.083 7743
.429	.025 0131	.067 520	.001 2349	.479	.075 9738	.999 109	.083 6794
2.430	1.055 3356	11.358 882	0.087 8368	2.480	1.077 0261	11.941 364	0.083 5845
.431	.025 7699	.079 217	.001 1488	.481	.077 4336	.983 212	.083 4896
.432	.026 2132	.091 603	.001 0609	.482	.077 8411	.995 171	.083 3947
.433	.026 6615	.010 010	.001 7731	.483	.078 2486	.997 144	.083 2998
.434	.027 0728	.011 379	.001 6854	.484	.078 6561	.999 135	.083 2049
2.435	1.057 5071	11.415 809	0.087 3472	2.485	1.079 2218	12.001 120	0.083 1100
.436	.027 9314	.027 230	.001 5962	.486	.079 6293	.993 147	.083 0151
.437	.028 3757	.038 693	.001 5072	.487	.080 0368	.995 147	.082 9202
.438	.028 8200	.050 118	.001 4183	.488	.080 4443	.997 178	.082 8253
.439	.029 2642	.061 573	.001 3294	.489	.080 8518	.999 221	.082 7304
2.440	1.059 6986	11.473 011	0.086 8569	2.490	1.081 3933	12.061 276	0.082 6355
.441	.030 1128	.081 520	.001 2407	.491	.081 8008	.993 343	.082 5406
.442	.030 5571	.093 010	.001 1517	.492	.082 2083	.995 433	.082 4457
.443	.031 0014	.017 512	.001 0628	.493	.082 6158	.997 518	.082 3508
.444	.031 4457	.029 045	.001 0129	.494	.083 0233	.999 611	.082 2559
2.445	1.061 8900	11.530 590	0.086 3661	2.495	1.083 5647	12.121 731	0.082 1610
.446	.031 8843	.032 080	.001 0035	.496	.083 9722	.993 801	.082 0661
.447	.032 3286	.043 632	.001 5539	.497	.084 3797	.995 891	.081 9712
.448	.032 7729	.055 193	.001 4641	.498	.084 7872	.997 983	.081 8763
.449	.033 2172	.067 764	.001 3743	.499	.085 1947	.999 100	.081 7814
	1.064 0215	11.588 347	0.086 2666	2.500	1.085 7362	12.182 494	0.082 0865
		e^0	e^{-0}		$\log_{10}(e^0)$	e^0	e^{-0}

The Exponential.

n	$\log_n(e^n)$	e^n	e^{-n}	n	$\log_n(e^n)$	e^n	e^{-n}
2.500	1.085 7302	12.182 494	0.082 0830	2.550	1.107 4509	12.807 104	0.078 0817
.501	.085 1705	.101 1853	.082 0030	.551	.107 8852	.819 917	.078 0030
.502	.085 6418	.205 8813	.081 9210	.552	.108 3105	.832 744	.077 9257
.503	.085 9301	.219 096	.081 8391	.553	.108 7518	.845 583	.077 8478
.504	.085 1254	.231 322	.081 7573	.554	.109 1881	.858 435	.077 7700
2.505	1.087 6977	12.213 530	0.081 6755	2.555	1.109 6221	12.871 300	0.077 6923
.506	.088 3120	.255 810	.081 5940	.556	.110 0570	.884 177	.077 6145
.507	.088 7761	.268 075	.081 5121	.557	.110 4910	.897 058	.077 5370
.508	.089 2100	.280 345	.081 4303	.558	.110 9253	.909 972	.077 4595
.509	.089 6410	.292 631	.081 3485	.559	.111 3595	.922 888	.077 3821
2.510	1.090 0791	12.204 030	0.081 2662	2.560	1.111 7939	12.935 817	0.077 3047
.511	.090 5134	.317 241	.081 1850	.561	.112 2282	.945 760	.077 2273
.512	.090 9477	.329 505	.081 1039	.562	.112 6625	.958 715	.077 1503
.513	.091 3820	.341 900	.081 0228	.563	.113 0968	.971 683	.077 0732
.514	.091 8163	.354 431	.080 9418	.564	.113 5311	.984 664	.076 9964
2.515	1.092 2506	12.266 600	0.080 8600	2.565	1.113 9653	13.000 658	0.076 9192
.516	.092 6849	.368 082	.080 7821	.566	.114 3995	.997 606	.076 8421
.517	.093 1192	.381 207	.080 7013	.567	.114 8339	.1005 681	.076 7653
.518	.093 5535	.393 764	.080 6207	.568	.115 2682	.1019 710	.076 6888
.519	.093 9878	.406 174	.080 5401	.569	.115 7025	.1034 765	.076 6121
2.520	1.094 4221	12.428 597	0.080 4595	2.570	1.116 1368	13.065 824	0.076 5355
.521	.094 8564	.411 032	.080 3792	.571	.116 5711	.1049 807	.076 4590
.522	.095 2907	.423 470	.080 2988	.572	.117 0054	.1064 852	.076 3826
.523	.095 7250	.436 038	.080 2186	.573	.117 4397	.1079 901	.076 3063
.524	.096 1593	.448 411	.080 1384	.574	.117 8740	.1094 954	.076 2300
2.525	1.096 5936	12.490 815	0.080 0583	2.575	1.118 3083	13.131 317	0.076 1538
.526	.097 0279	.460 292	.079 9783	.576	.118 7426	.1114 455	.076 0777
.527	.097 4622	.473 902	.079 8984	.577	.119 1769	.1129 505	.076 0017
.528	.097 8965	.486 441	.079 8185	.578	.119 6112	.1144 559	.075 9257
.529	.098 3307	.499 009	.079 7387	.579	.120 0455	.1159 618	.075 8498
2.530	1.098 7650	12.553 516	0.079 6580	2.580	1.120 4798	13.197 138	0.075 7740
.531	.099 1993	.516 005	.079 5784	.581	.120 9141	.1174 642	.075 6983
.532	.099 6336	.528 638	.079 4989	.582	.121 3484	.1189 681	.075 6225
.533	.100 0679	.541 223	.079 4191	.583	.121 7826	.1204 726	.075 5470
.534	.100 5022	.554 821	.079 3400	.584	.122 2169	.1219 774	.075 4715
2.535	1.100 9365	12.616 431	0.079 2617	2.585	1.122 6512	13.263 389	0.075 3961
.536	.101 3708	.568 054	.079 1825	.586	.123 0855	.1234 827	.075 3207
.537	.101 8051	.581 689	.079 1034	.587	.123 5198	.1249 881	.075 2454
.538	.102 2394	.595 337	.079 0243	.588	.123 9541	.1264 939	.075 1702
.539	.102 6737	.608 998	.078 9453	.589	.124 3884	.1280 001	.075 0951
2.540	1.103 1680	12.679 671	0.078 8664	2.590	1.124 8227	13.329 773	0.075 0200
.541	.103 6023	.622 352	.078 7876	.591	.125 2570	.1295 058	.074 9451
.542	.104 0366	.636 095	.078 7088	.592	.125 6913	.1309 558	.074 8701
.543	.104 4709	.649 797	.078 6300	.593	.126 1256	.1324 061	.074 7953
.544	.104 9052	.663 491	.078 5516	.594	.126 5599	.1338 568	.074 7206
2.545	1.105 3995	12.743 228	0.078 4731	2.595	1.126 9942	13.396 587	0.074 6459
.546	.105 8338	.677 178	.078 3946	.596	.127 4285	.1353 077	.074 5713
.547	.106 2680	.691 005	.078 3163	.597	.127 8628	.1367 581	.074 4967
.548	.106 7023	.704 815	.078 2380	.598	.128 2971	.1382 088	.074 4223
.549	.107 1366	.718 593	.078 1598	.599	.128 7314	.1396 598	.074 3479
2.550	1.107 4309	12.807 104	0.078 0817	2.600	1.129 1657	13.463 738	0.074 2736
$\log_n(e^n)$	$\log_n(e^n)$	e^n	e^{-n}	$\log_n(e^n)$	$\log_n(e^n)$	e^n	e^{-n}

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
2.600	1.129 1657	13.463 738	0.074 2735	2.690	1.190 8804	14.154 020	0.070 6512
.601	.129 3009	.497 208	.074 1093	.691	.191 3147	.818 209	.070 5860
.602	.130 0322	.499 692	.074 1252	.692	.191 7490	.821 375	.070 5701
.603	.130 4685	.501 190	.074 0811	.693	.192 1833	.824 535	.070 5543
.604	.130 9048	.517 701	.073 9771	.694	.192 6176	.827 698	.070 5384
2.605	1.131 3371	13.531 225	0.073 9031	2.695	1.193 0518	14.221 981	0.070 5228
.606	.131 7714	.544 703	.073 8293	.696	.193 4861	.830 861	.070 5070
.607	.132 2057	.548 115	.073 7555	.697	.193 9204	.834 021	.070 4911
.608	.132 6400	.551 886	.073 6818	.698	.194 3547	.837 182	.070 4753
.609	.133 0743	.585 459	.073 6081	.699	.194 7890	.840 342	.070 4594
2.610	1.133 5086	13.599 951	0.073 5345	2.700	1.195 2233	14.296 389	0.070 4438
.611	.133 9429	.612 657	.073 4610	.691	.195 6576	.843 503	.070 4281
.612	.134 3772	.616 270	.073 3870	.692	.196 0919	.846 664	.070 4125
.613	.134 8115	.619 909	.073 3143	.693	.196 5262	.849 824	.070 3967
.614	.135 2458	.653 356	.073 2410	.694	.196 9605	.852 985	.070 3810
2.615	1.135 6801	13.667 216	0.073 1678	2.705	1.197 3948	14.367 990	0.070 3654
.616	.136 1144	.680 820	.073 0947	.696	.197 8291	.856 145	.070 3498
.617	.136 5487	.684 578	.073 0216	.697	.198 2634	.859 305	.070 3341
.618	.136 9830	.708 260	.072 9485	.698	.198 6977	.862 465	.070 3185
.619	.137 4172	.721 905	.072 8757	.699	.199 1320	.865 625	.070 3028
2.620	1.137 8515	13.735 721	0.072 8049	2.706	1.199 5663	14.439 069	0.070 2872
.621	.138 2858	.749 456	.072 7304	.691	.199 9990	.868 785	.070 2716
.622	.138 7201	.753 222	.072 6571	.692	.200 4329	.871 945	.070 2560
.623	.139 1544	.770 503	.072 5838	.693	.200 8662	.875 105	.070 2404
.624	.139 5887	.790 770	.072 5122	.694	.201 2994	.878 265	.070 2248
2.625	1.140 0230	13.804 571	0.072 4398	2.707	1.201 7337	14.512 350	0.070 2092
.626	.140 4572	.818 380	.072 3674	.696	.202 1670	.881 420	.070 1936
.627	.140 8916	.812 211	.072 2959	.697	.202 6003	.884 580	.070 1780
.628	.141 3259	.846 080	.072 2238	.698	.203 0336	.887 740	.070 1624
.629	.141 7602	.869 993	.072 1506	.699	.203 4669	.890 900	.070 1468
2.630	1.142 1945	13.873 770	0.072 0785	2.710	1.203 9002	14.585 631	0.070 1312
.631	.142 6288	.887 651	.072 0064	.691	.204 3335	.894 060	.070 1156
.632	.143 0631	.901 545	.071 9344	.692	.204 7668	.897 220	.070 1000
.633	.143 4974	.915 451	.071 8626	.693	.205 1999	.899 380	.070 0844
.634	.143 9317	.939 376	.071 7907	.694	.205 6332	.902 540	.070 0688
2.635	1.144 3690	13.943 312	0.071 7190	2.715	1.205 0665	14.658 301	0.070 2212
.636	.144 8033	.957 263	.071 6473	.696	.205 4998	.905 700	.070 1530
.637	.145 2375	.971 227	.071 5757	.697	.205 9331	.908 860	.070 1374
.638	.145 6718	.985 205	.071 5041	.698	.206 3664	.912 020	.070 1218
.639	.146 1061	.999 197	.071 4327	.699	.206 7997	.915 180	.070 1062
2.640	1.146 5374	14.013 204	0.071 3613	2.720	1.206 2322	14.731 696	0.070 0880
.641	.146 9717	.997 224	.071 2899	.691	.206 6655	.918 340	.070 0724
.642	.147 4060	.911 298	.071 2187	.692	.207 0988	.921 500	.070 0568
.643	.147 8403	.925 306	.071 1475	.693	.207 5321	.924 660	.070 0412
.644	.148 2746	.939 369	.071 0764	.694	.207 9654	.927 820	.070 0256
2.645	1.148 7080	14.083 415	0.071 0054	2.725	1.207 3979	14.805 519	0.070 0100
.646	.149 1423	.997 536	.070 9344	.696	.207 8312	.930 980	.070 0044
.647	.149 5765	.911 649	.070 8633	.697	.208 2645	.934 140	.070 0088
.648	.149 0108	.925 759	.070 7927	.698	.208 6978	.937 300	.070 0032
.649	.149 4451	.939 852	.070 7219	.699	.209 1311	.940 460	.070 0076
2.650	1.150 8804	14.154 030	0.070 6512	2.730	1.207 8251	14.879 732	0.070 2035
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

SMITHSONIAN TABLES

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
2.700	1.172 9181	14.879 732	0.067 2065	2.750	1.194 3068	15.632 632	0.063 9279
.701	.172 9334	.864 6199	.067 1383	.751	.194 2441	.668 282	.063 8429
.702	.173 0567	.869 521	.067 0712	.752	.195 1781	.673 948	.063 8003
.703	.173 1800	.874 428	.067 0042	.753	.196 1127	.679 630	.063 7584
.704	.173 3033	.879 339	.066 9372	.754	.197 0470	.685 328	.063 7171
2.705	1.174 7665	14.954 317	0.066 8703	2.755	1.196 4813	15.721 041	0.063 6750
.706	.175 2899	.884 268	.066 8035	.756	.197 4155	.691 047	.063 6344
.707	.175 4132	.889 155	.066 7367	.757	.198 3499	.696 514	.063 5939
.708	.175 5365	.894 047	.066 6700	.758	.199 2842	.702 075	.063 5535
.709	.175 6598	15.014 254	.066 6039	.759	.199 2185	.707 651	.063 5131
2.710	1.176 9380	15.089 275	0.066 5368	2.760	1.198 6528	15.790 813	0.063 4718
.711	.177 4613	.898 912	.066 4704	.761	.199 5871	.713 151	.063 4315
.712	.177 5846	.903 804	.066 4039	.762	.199 5214	.718 474	.063 3913
.713	.178 1079	.908 691	.066 3375	.763	.199 4557	.723 714	.063 3512
.714	.178 2312	.913 583	.066 2712	.764	.199 3900	.729 169	.063 3111
2.715	1.179 3095	15.164 610	0.066 2040	2.765	1.200 8242	15.879 040	0.063 2708
.716	.179 8328	.918 422	.066 1385	.766	.201 7585	.734 947	.063 2312
.717	.179 9561	.923 314	.066 0727	.767	.201 6928	.740 890	.063 1917
.718	.180 0794	.928 202	.066 0066	.768	.202 1271	.746 839	.063 1522
.719	.180 2027	.933 095	.065 9407	.769	.202 0614	.752 832	.063 1127
2.720	1.181 2810	15.240 322	0.065 8748	2.770	1.202 9957	15.958 634	0.063 0724
.721	.181 8043	.937 910	.065 8088	.771	.203 9300	.758 801	.063 0330
.722	.181 9276	.942 802	.065 7431	.772	.203 8643	.764 805	.063 0138
.723	.182 0509	.947 694	.065 6774	.773	.204 7986	.770 810	.063 0141
.724	.182 1742	.952 586	.065 6118	.774	.204 7329	.776 815	.063 0144
2.725	1.183 2525	15.315 644	0.065 5462	2.775	1.205 1672	16.038 637	0.063 0147
.726	.183 7758	.957 478	.065 4807	.776	.205 1015	.782 820	.063 0150
.727	.183 8991	.962 370	.065 4151	.777	.205 0358	.788 825	.063 0153
.728	.184 0224	.967 262	.065 3495	.778	.205 9701	.794 830	.063 0156
.729	.184 1457	.972 154	.065 2838	.779	.205 9044	.800 835	.063 0159
2.730	1.185 3239	15.391 487	0.065 2183	2.780	1.207 3387	16.119 021	0.063 0162
.731	.185 8472	.977 046	.065 1527	.781	.207 2730	.806 840	.063 0165
.732	.185 9705	.981 938	.065 0870	.782	.207 2073	.812 845	.063 0168
.733	.186 0938	.986 830	.065 0213	.783	.207 1416	.818 850	.063 0171
.734	.186 2171	.991 722	.064 9556	.784	.207 0759	.824 855	.063 0174
2.735	1.187 3021	15.467 743	0.064 8900	2.785	1.209 5101	16.199 818	0.063 0177
.736	.187 8254	.996 614	.064 8243	.786	.209 4444	.830 860	.063 0180
.737	.187 9487	.100 506	.064 7586	.787	.210 3787	.836 865	.063 0183
.738	.188 0720	.101 398	.064 6929	.788	.210 3130	.842 870	.063 0186
.739	.188 1953	.102 290	.064 6272	.789	.211 2473	.848 875	.063 0189
2.740	1.189 3769	15.543 985	0.064 5615	2.790	1.211 6816	16.281 020	0.063 0192
.741	.189 9002	.103 182	.064 4958	.791	.212 6159	.854 880	.063 0195
.742	.190 0235	.104 074	.064 4301	.792	.212 5502	.860 885	.063 0198
.743	.190 1468	.104 966	.064 3644	.793	.212 4845	.866 890	.063 0201
.744	.190 2701	.105 858	.064 2987	.794	.212 4188	.872 895	.063 0204
2.745	1.191 4581	15.620 614	0.064 2330	2.795	1.213 1231	16.363 629	0.063 0207
.746	.191 9814	.106 750	.064 1673	.796	.213 0574	.878 900	.063 0210
.747	.192 1047	.107 642	.064 1016	.797	.213 9917	.884 905	.063 0213
.748	.192 2280	.108 534	.064 0359	.798	.213 9260	.890 910	.063 0216
.749	.192 3513	.109 426	.063 9702	.799	.213 8603	.896 915	.063 0219
2.750	1.193 5408	15.697 632	0.063 9045	2.800	1.215 0285	16.444 647	0.063 0222
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

The Exponential.

n	$\log_{10}(e^n)$	e^n	e^{-n}	n	$\log_{10}(e^n)$	e^n	e^{-n}
2.801	1.216 0215	16.441 647	0.061 8101	2.850	1.247 7401	17.387 7312	0.057 8413
.802	1.216 4588	.461 100	.000 7921	.851	1.248 1735	.465 0791	.057 7866
.803	1.216 8911	.477 599	.000 1686	.852	1.248 6079	.469 3012	.057 7317
.804	1.217 3234	.494 055	.000 16291	.853	1.249 0423	.473 5254	.057 6770
.804	1.217 7567	.510 552	.000 3973	.854	1.249 4765	.477 6921	.057 6241
2.805	1.218 1900	16.527 076	0.060 3908	2.855	1.249 9109	17.471 447	0.057 5698
.806	1.218 6233	.513 601	.000 4191	.856	1.250 3450	.481 8435	.057 5161
.807	1.219 0566	.530 103	.000 4850	.857	1.250 7793	.486 0111	.057 4638
.808	1.219 4899	.546 713	.000 5455	.858	1.251 2137	.490 1690	.057 4111
.809	1.219 9232	.563 317	.000 5951	.859	1.251 6479	.494 3194	.057 3591
2.810	1.220 3565	16.609 018	0.060 2050	2.860	1.252 0822	17.561 557	0.057 3088
.811	1.220 7898	.605 535	.000 5448	.861	1.252 5165	.498 4617	.057 2593
.812	1.221 2231	.621 171	.000 6047	.862	1.252 9508	.502 495	.057 2113
.813	1.221 6564	.636 823	.000 6649	.863	1.253 3851	.506 5183	.057 1642
.814	1.222 0897	.652 491	.000 7247	.864	1.253 8194	.510 5314	.057 1181
2.815	1.222 5230	16.691 176	0.059 9037	2.865	1.254 2537	17.651 051	0.056 9841
.816	1.222 9563	.709 877	.000 8128	.866	1.254 6880	.514 5441	.056 9482
.817	1.223 3896	.725 565	.000 7850	.867	1.255 1223	.518 5483	.056 9133
.818	1.223 8229	.741 311	.000 7551	.868	1.255 5566	.522 5441	.056 8791
.819	1.224 2562	.757 082	.000 6950	.869	1.255 9909	.526 5310	.056 8457
2.820	1.224 6895	16.776 851	0.059 6059	2.870	1.256 4252	17.742 021	0.056 6889
.821	1.225 1228	.773 636	.000 5461	.871	1.256 8595	.530 5161	.056 6423
.822	1.225 5561	.789 498	.000 4968	.872	1.257 2938	.534 4918	.056 5963
.823	1.225 9894	.805 357	.000 4573	.873	1.257 7281	.538 4680	.056 5501
.824	1.226 4227	.821 191	.000 4180	.874	1.258 1624	.542 4353	.056 5046
2.825	1.226 8560	16.860 115	0.059 3087	2.875	1.258 5967	17.835 471	0.056 4161
.826	1.227 2893	.837 861	.000 3791	.876	1.259 0310	.546 4038	.056 3708
.827	1.227 7226	.853 701	.000 3392	.877	1.259 4653	.550 3710	.056 3251
.828	1.228 1559	.869 541	.000 3110	.878	1.259 8996	.554 3383	.056 2791
.829	1.228 5892	.885 381	.000 2799	.879	1.260 3339	.558 3056	.056 2338
2.830	1.229 0225	16.945 461	0.059 0129	2.880	1.260 7682	17.931 273	0.056 1118
.831	1.229 4558	.902 115	.000 2600	.881	1.261 2025	.562 2731	.056 0787
.832	1.229 8891	.917 989	.000 2401	.882	1.261 6368	.566 2403	.056 0456
.833	1.230 3224	.933 873	.000 2191	.883	1.262 0711	.570 2075	.056 0125
.834	1.230 7557	.949 766	.000 1973	.884	1.262 5054	.574 1747	.055 9797
2.835	1.231 1890	17.030 490	0.058 7183	2.885	1.262 9397	18.029 981	0.055 8538
.836	1.231 6223	.965 679	.000 1768	.886	1.263 3740	.578 1419	.055 8208
.837	1.232 0556	.981 595	.000 1553	.887	1.263 8083	.582 1091	.055 7878
.838	1.232 4889	.997 518	.000 1336	.888	1.264 2426	.586 0763	.055 7548
.839	1.232 9222	.013 448	.000 1111	.889	1.264 6769	.590 0435	.055 7218
2.840	1.233 3555	17.115 566	0.058 4257	2.890	1.265 1112	18.129 310	0.055 5953
.841	1.233 7888	.102 361	.000 9973	.891	1.265 5455	.594 0107	.055 5623
.842	1.234 2221	.118 111	.000 9080	.892	1.265 9798	.597 9779	.055 5293
.843	1.234 6554	.133 861	.000 8207	.893	1.266 4141	.601 9451	.055 4963
.844	1.235 0887	.149 611	.000 7351	.894	1.266 8484	.605 9123	.055 4633
2.845	1.235 5220	17.201 559	0.058 1313	2.895	1.267 2827	18.239 581	0.055 3378
.846	1.235 9553	.165 361	.000 6502	.896	1.267 7170	.609 8795	.055 3048
.847	1.236 3886	.181 111	.000 5651	.897	1.268 1513	.613 8467	.055 2718
.848	1.236 8219	.196 861	.000 4801	.898	1.268 5856	.617 8139	.055 2388
.849	1.237 2552	.212 611	.000 3951	.899	1.269 0199	.621 7811	.055 2058
2.850	1.237 6885	17.287 732	0.057 8413	2.900	1.269 4542	18.351 145	0.055 0812
$\log_{10}(e^n)$	$\log_{10}(e^n)$	e^n	e^{-n}	$\log_{10}(e^n)$	$\log_{10}(e^n)$	e^n	e^{-n}

SMITHSONIAN TABLES

The Exponential.

u	$\log(e^u)$	e^u	e^{-u}	u	$\log(e^u)$	e^u	e^{-u}
2.020	1.259 4540	18.173 145	0.055 0232	2.050	1.381 1687	19.105 951	0.052 3397
2.021	1.259 5885	18.182 322	0.054 9381	2.051	1.381 6030	19.125 009	0.052 2874
2.022	1.259 7230	18.191 500	0.054 8531	2.052	1.382 0373	19.144 301	0.052 2351
2.023	1.259 8575	18.200 678	0.054 7681	2.053	1.382 4716	19.163 288	0.052 1829
2.024	1.259 9920	18.209 856	0.054 6831	2.054	1.382 9059	19.182 531	0.052 1308
2.025	1.260 1265	18.219 034	0.054 5981	2.055	1.383 3402	19.201 723	0.052 0787
2.026	1.260 2610	18.228 212	0.054 5131	2.056	1.383 7745	19.220 931	0.052 0266
2.027	1.260 3955	18.237 390	0.054 4281	2.057	1.384 2088	19.240 165	0.051 9746
2.028	1.260 5300	18.246 568	0.054 3431	2.058	1.384 6431	19.259 411	0.051 9227
2.029	1.260 6645	18.255 746	0.054 2581	2.059	1.385 0774	19.278 681	0.051 8708
2.030	1.260 7990	18.264 924	0.054 1731	2.060	1.385 5117	19.297 972	0.051 8189
2.031	1.260 9335	18.274 102	0.054 0881	2.061	1.385 9460	19.317 279	0.051 7671
2.032	1.261 0680	18.283 280	0.054 0031	2.062	1.386 3803	19.336 605	0.051 7154
2.033	1.261 2025	18.292 458	0.053 9181	2.063	1.386 8146	19.355 953	0.051 6637
2.034	1.261 3370	18.301 636	0.053 8331	2.064	1.387 2489	19.375 318	0.051 6121
2.035	1.261 4715	18.310 814	0.053 7481	2.065	1.387 6832	19.394 703	0.051 5605
2.036	1.261 6060	18.320 000	0.053 6631	2.066	1.388 1175	19.414 108	0.051 5089
2.037	1.261 7405	18.329 188	0.053 5781	2.067	1.388 5518	19.433 531	0.051 4575
2.038	1.261 8750	18.338 376	0.053 4931	2.068	1.388 9861	19.452 975	0.051 4060
2.039	1.262 0095	18.347 564	0.053 4081	2.069	1.389 4204	19.472 437	0.051 3546
2.040	1.262 1440	18.356 752	0.053 3231	2.070	1.389 8547	19.491 920	0.051 3033
2.041	1.262 2785	18.365 940	0.053 2381	2.071	1.390 2890	19.511 421	0.051 2520
2.042	1.262 4130	18.375 128	0.053 1531	2.072	1.390 7233	19.530 939	0.051 2008
2.043	1.262 5475	18.384 316	0.053 0681	2.073	1.391 1576	19.550 473	0.051 1496
2.044	1.262 6820	18.393 504	0.052 9831	2.074	1.391 5919	19.570 023	0.051 0985
2.045	1.262 8165	18.402 692	0.052 8981	2.075	1.392 0262	19.589 589	0.051 0474
2.046	1.262 9510	18.411 880	0.052 8131	2.076	1.392 4605	19.609 173	0.051 0064
2.047	1.263 0855	18.421 068	0.052 7281	2.077	1.392 8948	19.628 773	0.050 9654
2.048	1.263 2200	18.430 256	0.052 6431	2.078	1.393 3291	19.648 389	0.050 9245
2.049	1.263 3545	18.439 444	0.052 5581	2.079	1.393 7634	19.668 023	0.050 8837
2.050	1.263 4890	18.448 632	0.052 4731	2.080	1.394 1977	19.687 673	0.050 8430
2.051	1.263 6235	18.457 820	0.052 3881	2.081	1.394 6320	19.707 339	0.050 8023
2.052	1.263 7580	18.467 008	0.052 3031	2.082	1.395 0663	19.727 023	0.050 7617
2.053	1.263 8925	18.476 196	0.052 2181	2.083	1.395 5006	19.746 723	0.050 7212
2.054	1.264 0270	18.485 384	0.052 1331	2.084	1.395 9349	19.766 439	0.050 6808
2.055	1.264 1615	18.494 572	0.052 0481	2.085	1.396 3692	19.786 173	0.050 6405
2.056	1.264 2960	18.503 760	0.051 9631	2.086	1.396 8035	19.805 923	0.050 6002
2.057	1.264 4305	18.512 948	0.051 8781	2.087	1.397 2378	19.825 689	0.050 5600
2.058	1.264 5650	18.522 136	0.051 7931	2.088	1.397 6721	19.845 473	0.050 5198
2.059	1.264 6995	18.531 324	0.051 7081	2.089	1.398 1064	19.865 273	0.050 4797
2.060	1.264 8340	18.540 512	0.051 6231	2.090	1.398 5407	19.885 089	0.050 4397
2.061	1.264 9685	18.549 700	0.051 5381	2.091	1.398 9750	19.904 923	0.050 4000
2.062	1.265 1030	18.558 888	0.051 4531	2.092	1.399 4093	19.924 773	0.050 3604
2.063	1.265 2375	18.568 076	0.051 3681	2.093	1.399 8436	19.944 643	0.050 3209
2.064	1.265 3720	18.577 264	0.051 2831	2.094	1.400 2779	19.964 533	0.050 2815
2.065	1.265 5065	18.586 452	0.051 1981	2.095	1.400 7122	19.984 443	0.050 2422
2.066	1.265 6410	18.595 640	0.051 1131	2.096	1.401 1465	19.999 373	0.050 2030
2.067	1.265 7755	18.604 828	0.051 0281	2.097	1.401 5808	20.014 323	0.050 1639
2.068	1.265 9100	18.614 016	0.050 9431	2.098	1.402 0151	20.029 293	0.050 1249
2.069	1.266 0445	18.623 204	0.050 8581	2.099	1.402 4494	20.044 283	0.050 0859
2.070	1.266 1790	18.632 392	0.050 7731	2.100	1.402 8837	20.059 293	0.050 0470
2.071	1.266 3135	18.641 580	0.050 6881	2.101	1.403 3180	20.074 323	0.050 0082
2.072	1.266 4480	18.650 768	0.050 6031	2.102	1.403 7523	20.089 373	0.049 9695
2.073	1.266 5825	18.659 956	0.050 5181	2.103	1.404 1866	20.104 443	0.049 9309
2.074	1.266 7170	18.669 144	0.050 4331	2.104	1.404 6209	20.119 533	0.049 8924
2.075	1.266 8515	18.678 332	0.050 3481	2.105	1.405 0552	20.134 643	0.049 8540
2.076	1.266 9860	18.687 520	0.050 2631	2.106	1.405 4895	20.149 773	0.049 8157
2.077	1.267 1205	18.696 708	0.050 1781	2.107	1.405 9238	20.164 923	0.049 7775
2.078	1.267 2550	18.705 896	0.050 0931	2.108	1.406 3581	20.180 093	0.049 7394
2.079	1.267 3895	18.715 084	0.050 0081	2.109	1.406 7924	20.195 283	0.049 7014
2.080	1.267 5240	18.724 272	0.049 9231	2.110	1.407 2267	20.210 493	0.049 6635
2.081	1.267 6585	18.733 460	0.049 8381	2.111	1.407 6610	20.225 723	0.049 6257
2.082	1.267 7930	18.742 648	0.049 7531	2.112	1.408 0953	20.240 973	0.049 5880
2.083	1.267 9275	18.751 836	0.049 6681	2.113	1.408 5296	20.256 243	0.049 5504
2.084	1.268 0620	18.761 024	0.049 5831	2.114	1.408 9639	20.271 533	0.049 5129
2.085	1.268 1965	18.770 212	0.049 4981	2.115	1.409 3982	20.286 843	0.049 4755
2.086	1.268 3310	18.779 400	0.049 4131	2.116	1.409 8325	20.302 173	0.049 4382
2.087	1.268 4655	18.788 588	0.049 3281	2.117	1.410 2668	20.317 523	0.049 4010
2.088	1.268 6000	18.797 776	0.049 2431	2.118	1.410 7011	20.332 893	0.049 3639
2.089	1.268 7345	18.806 964	0.049 1581	2.119	1.411 1354	20.348 283	0.049 3269
2.090	1.268 8690	18.816 152	0.049 0731	2.120	1.411 5697	20.363 693	0.049 2900
2.091	1.269 0035	18.825 340	0.048 9881	2.121	1.412 0040	20.379 123	0.049 2532
2.092	1.269 1380	18.834 528	0.048 9031	2.122	1.412 4383	20.394 573	0.049 2165
2.093	1.269 2725	18.843 716	0.048 8181	2.123	1.412 8726	20.410 043	0.049 1800
2.094	1.269 4070	18.852 904	0.048 7331	2.124	1.413 3069	20.425 533	0.049 1436
2.095	1.269 5415	18.862 092	0.048 6481	2.125	1.413 7412	20.441 043	0.049 1073
2.096	1.269 6760	18.871 280	0.048 5631	2.126	1.414 1755	20.456 573	0.049 0711
2.097	1.269 8105	18.880 468	0.048 4781	2.127	1.414 6098	20.472 123	0.049 0350
2.098	1.269 9450	18.889 656	0.048 3931	2.128	1.415 0441	20.487 693	0.049 0000
2.099	1.270 0795	18.898 844	0.048 3081	2.129	1.415 4784	20.503 283	0.048 9651
2.100	1.270 2140	18.908 032	0.048 2231	2.130	1.415 9127	20.518 893	0.048 9303
2.101	1.270 3485	18.917 220	0.048 1381	2.131	1.416 3470	20.534 523	0.048 8956
2.102	1.270 4830	18.926 408	0.048 0531	2.132	1.416 7813	20.550 173	0.048 8610
2.103	1.270 6175	18.935 596	0.047 9681	2.133	1.417 2156	20.565 843	0.048 8265
2.104	1.270 7520	18.944 784	0.047 8831	2.134	1.417 6499	20.581 533	0.048 7921
2.105	1.270 8865	18.953 972	0.047 7981	2.135	1.418 0842	20.597 243	0.048 7578
2.106	1.271 0210	18.963 160	0.047 7131	2.136	1.418 5185	20.612 973	0.048 7236
2.107	1.271 1555	18.972 348	0.047 6281	2.137	1.418 9528	20.628 723	0.048 6895
2.108	1.271 2900	18.981 536	0.047 5431	2.138	1.419 3871	20.644 493	0.048 6555
2.109	1.271 4245	18.990 724	0.047 4581	2.139	1.419 8214	20.660 283	0.048 6216
2.110	1.271 5590	19.000 000	0.047 3731	2.140	1.420 2557	20.676 093	0.048 5878
2.111	1.271 6935	19.009 188	0.047 2881	2.141	1.420 6900	20.691 923	0.048 5541
2.112	1.271 8280	19.018 376	0.047 2031	2.142	1.421 1243	20.707 773	0.048 5205
2.113	1.271 9625	19.027 564	0.047 1181	2.143	1.421 5586	20.723 643	0.048 4870
2.114	1.272 0970	19.036 752	0.047 0331	2.144	1.421 9929	20.739 533	0.048 4536
2.115	1.272 2315	19.045 940	0.046 9481	2.145	1.422 4272	20.755 443	0.048 4203
2.116	1.272 3660	19.055 128	0.046 8631	2.146	1.422 8615	20.771 373	0.048 3871
2.117	1.272 5005	19.064 316	0.046 7781	2.147	1.423 2958	20.787 323	0.048 3540
2.118	1.272 6350	19.073 504	0.046 6931	2.148	1.423 7301	20.803 293	0.048 3210
2.119	1.272 7695	19.082 692	0.046 6081	2.149	1.424 1644	20.819 283	0.048 2881
2.120	1.272 9040	19.091 880	0.046 5231	2.150	1.424 5987	20.835 293	0.048 2553
2.121	1.273 0385	19.101 068	0.046 4381	2.151	1.425 0330	20.851 323	0.048 2226
2.122	1.273 1730	19.110 256	0.046 3531	2.152	1.425 4673	20.867 373	0.048 1900
2.123	1.273 3075	19.119 444	0.046 2681	2.153	1.425 9016	20.883 443	0.048 1575
2.124	1.273 4420	19.128 632	0.046 1831	2.154	1.426 3359	20.899 533	0.048 1251
2.125	1.273 5765	19.137 820</					

The Exponential.

x	$\log_{10}(e^x)$	e^x	e^{-x}	x	$\log_{10}(e^x)$	e^x	e^{-x}
3.00	1.301 2813	20.085 537	0.050 7891	3.50	1.539 0377	33.115 452	0.030 1074
.01	.307 2251	.892 000	.009 5017	.51	.571 1723	1.448 148	.009 8999
.02	.311 5910	.912 202	.008 8312	.52	.575 2166	1.781 479	.009 5911
.03	.315 9543	.932 743	.008 1819	.53	.579 1695	2.147 423	.009 2909
.04	.320 2582	.953 613	.007 5619	.54	.583 0425	2.547 604	.008 9983
3.05	1.321 5082	21.185 341	0.047 3584	3.55	1.541 7141	34.862 438	0.029 7216
.05	.325 6111	.974 557	.006 8877	.55	.586 8451	3.000 897	.008 6988
.06	.329 6640	.995 683	.006 4212	.56	.590 7463	3.491 501	.008 4099
.07	.333 6741	1.017 000	.005 9691	.57	.594 6172	4.011 511	.008 1227
.08	.337 6470	1.038 507	.005 5303	.58	.598 4587	4.561 565	.007 8361
.09	.341 5999	1.060 208	.005 1040				
3.10	1.345 3120	22.169 481	0.045 0912	3.60	1.561 4901	36.098 231	0.028 5327
.11	.349 0528	1.082 111	.004 6816	.61	.599 3611	5.142 651	.007 5538
.12	.352 7588	1.099 383	.004 3877	.62	.603 2019	5.718 773	.007 2749
.13	.356 4371	1.117 080	.004 1078	.63	.607 0134	6.329 267	.007 0022
.14	.360 0947	1.135 210	.003 8401	.64	.610 7956	6.975 512	.006 7343
3.15	1.368 6276	23.131 065	0.042 8621	3.65	1.568 4799	37.474 669	0.027 5911
.15	.363 7206	1.152 905	.003 5857	.65	.614 6478	7.559 343	.006 4735
.16	.367 7745	1.170 281	.003 3439	.66	.618 4907	8.184 605	.006 1795
.17	.371 7945	1.188 180	.003 1137	.67	.622 3086	8.851 001	.005 9069
.18	.375 7858	1.206 645	.002 8940	.68	.626 0915	9.559 161	.005 6439
.19	.379 7531	1.225 717	.002 6847	.69	.629 8394	10.309 725	.005 3893
3.20	1.389 7343	24.153 330	0.040 7632	3.70	1.569 1865	40.417 291	0.026 7315
.20	.379 0853	1.245 688	.002 4853	.71	.633 6425	11.113 867	.005 1476
.22	.385 1881	1.266 129	.002 2951	.72	.637 4155	11.959 399	.004 9749
.23	.390 2772	1.287 057	.002 1197	.73	.641 1584	12.845 601	.004 8098
.24	.395 3471	1.308 512	.001 9580	.74	.644 8713	13.773 201	.004 6511
3.25	1.411 4571	25.200 330	0.038 7742	3.75	1.568 6613	42.331 682	0.026 3177
.25	.395 8000	1.329 887	.001 8081	.75	.648 5543	14.761 471	.004 5007
.27	.400 1430	1.351 389	.001 6694	.77	.652 2172	15.799 075	.004 3521
.28	.404 4691	1.373 074	.001 5381	.78	.655 8501	16.895 112	.004 2127
.29	.408 7828	1.394 983	.001 4140	.79	.659 4530	18.049 400	.004 0806
3.30	1.433 7218	26.192 639	0.036 8812	3.80	1.569 3599	44.291 183	0.025 9938
.31	.412 5147	1.385 325	.001 3012	.81	.663 0269	19.259 433	.004 1412
.32	.416 8577	1.406 354	.001 1938	.82	.666 5699	20.375 001	.004 0078
.33	.421 1806	1.427 615	.001 0921	.83	.670 0928	21.548 401	.003 8806
.34	.425 4871	1.449 137	.001 0000	.84	.673 5957	22.780 261	.003 7593
3.35	1.453 8815	28.502 711	0.035 0814	3.85	1.569 1138	46.092 093	0.025 9707
.35	.429 7905	1.470 961	.000 9084	.85	.677 0787	23.981 331	.003 6430
.37	.434 0741	1.493 057	.000 8219	.86	.680 5416	25.145 399	.003 5261
.38	.438 3453	1.515 427	.000 7401	.87	.683 9845	26.374 115	.003 4168
.39	.442 5981	1.538 092	.000 6629	.88	.687 4074	27.668 001	.003 3143
3.40	1.476 6612	29.961 100	0.033 3233	3.90	1.569 2185	48.092 449	0.025 9319
.41	.446 9112	1.560 821	.000 5892	.89	.690 8003	28.935 544	.003 2189
.42	.451 1451	1.583 315	.000 5201	.90	.694 1712	30.341 445	.003 1127
.43	.455 3671	1.606 083	.000 4551	.91	.697 5211	31.801 601	.003 0122
.44	.459 5721	1.629 147	.000 3940				
3.45	1.498 3160	31.500 262	0.031 7456	3.95	1.571 4611	51.035 369	0.025 9517
.45	.463 7609	1.652 427	.000 3365	.92	.699 9401	32.957 376	.002 9169
.47	.467 9909	1.676 411	.000 2831	.93	.703 3970	34.941 101	.002 7893
.48	.472 2011	1.701 122	.000 2337	.94	.706 8319	36.987 001	.002 6680
.49	.476 3967	1.726 588	.000 1880	.95	.710 2448	39.105 889	.002 5527
3.50	1.520 0307	33.115 452	0.030 1074	4.00	1.737 4779	51.598 199	0.025 9156
$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}	$\log_{10}(e^x)$	$\log_{10}(e^x)$	e^x	e^{-x}

SMITHSONIAN TABLES

The Exponential.

u	$\log(u^e)$	e^u	e^{-u}	u	$\log(u^e)$	e^u	e^{-u}
4.40	1.737 1770	51.508 190	0.018 3156	4.50	1.954 3252	90.017 131	0.011 1090
4.41	1.741 5000	55.126 871	0.018 1334	4.51	1.958 6661	92.819 819	0.010 9235
4.42	1.745 8188	59.010 465	0.017 9530	4.52	1.963 0111	95.835 568	0.010 8890
4.43	1.750 2018	63.069 913	0.017 7743	4.53	1.967 3510	99.078 961	0.010 7807
4.44	1.754 5407	67.326 343	0.017 5975	4.54	1.971 6950	102.560 800	0.010 6734
4.45	1.758 8827	71.797 457	0.017 4224	4.55	1.976 0390	106.282 408	0.010 5672
4.46	1.763 2295	76.494 314	0.017 2490	4.56	1.980 3828	110.253 380	0.010 4621
4.47	1.767 5815	81.428 953	0.017 0774	4.57	1.984 7258	114.484 116	0.010 3580
4.48	1.771 9285	86.603 470	0.016 9075	4.58	1.989 0687	118.984 304	0.010 2549
4.49	1.776 2814	92.030 834	0.016 7392	4.59	1.993 4117	123.764 430	0.010 1529
4.50	1.780 6301	97.724 288	0.016 5727	4.60	1.997 7546	128.844 316	0.010 0518
4.51	1.784 9853	103.698 718	0.016 4078	4.61	2.002 0976	134.244 150	0.009 9518
4.52	1.789 3473	109.960 242	0.016 2445	4.62	2.006 4405	140.000 612	0.009 8528
4.53	1.793 7160	116.527 921	0.016 0829	4.63	2.010 7834	146.141 564	0.009 7548
4.54	1.798 0922	123.420 821	0.015 9229	4.64	2.015 1264	152.694 348	0.009 6579
4.55	1.802 4221	130.669 000	0.015 7654	4.65	2.019 4693	159.684 985	0.009 5616
4.56	1.806 7660	138.293 523	0.015 6076	4.66	2.023 8123	167.053 684	0.009 4665
4.57	1.811 0950	146.324 452	0.015 4523	4.67	2.028 1552	174.827 743	0.009 3723
4.58	1.815 3890	154.793 863	0.015 2985	4.68	2.032 4982	183.044 171	0.009 2790
4.59	1.819 6929	163.732 791	0.015 1463	4.69	2.036 8411	191.644 386	0.009 1867
4.60	1.823 9968	173.182 331	0.014 9956	4.70	2.041 1841	200.674 172	0.009 0953
4.61	1.828 3098	183.173 510	0.014 8463	4.71	2.045 5270	210.232 100	0.009 0048
4.62	1.832 6227	193.747 384	0.014 6986	4.72	2.049 8700	220.374 253	0.008 9152
4.63	1.836 9357	204.945 232	0.014 5524	4.73	2.054 2129	231.144 563	0.008 8265
4.64	1.841 2486	216.708 852	0.014 4076	4.74	2.058 5558	242.544 300	0.008 7389
4.65	1.845 5615	229.080 412	0.014 2642	4.75	2.062 8983	254.614 385	0.008 6517
4.66	1.849 8745	242.103 983	0.014 1223	4.76	2.067 2417	267.404 920	0.008 5656
4.67	1.854 1874	255.823 633	0.013 9818	4.77	2.071 5847	280.974 242	0.008 4804
4.68	1.858 4994	270.283 440	0.013 8427	4.78	2.075 9276	295.374 361	0.008 3960
4.69	1.862 8123	285.538 488	0.013 7049	4.79	2.080 2706	310.664 350	0.008 3125
4.70	1.867 1252	301.638 764	0.013 5685	4.80	2.084 6135	326.944 418	0.008 2307
4.71	1.871 4381	318.638 480	0.013 4335	4.81	2.088 9565	344.374 608	0.008 1497
4.72	1.875 7510	336.593 628	0.013 2999	4.82	2.093 2995	363.014 813	0.008 0688
4.73	1.880 0639	355.558 869	0.013 1675	4.83	2.097 6425	382.424 961	0.007 9885
4.74	1.884 3768	375.588 430	0.013 0365	4.84	2.101 9855	403.674 352	0.007 9071
4.75	1.888 6897	396.748 161	0.012 9068	4.85	2.106 3285	426.244 300	0.007 8264
4.76	1.892 9926	419.103 983	0.012 7784	4.86	2.110 6715	450.204 208	0.007 7465
4.77	1.897 3055	442.813 652	0.012 6512	4.87	2.115 0145	475.634 913	0.007 6673
4.78	1.901 6184	467.943 403	0.012 5254	4.88	2.119 3575	502.634 165	0.007 5890
4.79	1.905 9313	494.558 419	0.012 4007	4.89	2.123 7005	531.294 575	0.007 5124
4.80	1.910 2442	522.738 860	0.012 2773	4.90	2.128 0435	562.104 760	0.007 4366
4.81	1.914 5571	552.558 364	0.012 1554	4.91	2.132 3865	595.684 415	0.007 3625
4.82	1.918 8700	584.093 385	0.012 0342	4.92	2.136 7295	632.184 513	0.007 2891
4.83	1.923 1829	617.513 417	0.011 9145	4.93	2.141 0725	671.784 382	0.007 2165
4.84	1.927 4958	652.913 612	0.011 7960	4.94	2.145 4155	714.644 230	0.007 1446
4.85	1.931 8087	690.403 934	0.011 6786	4.95	2.149 7585	760.944 964	0.007 0734
4.86	1.936 1216	730.093 919	0.011 5624	4.96	2.154 1015	810.844 796	0.007 0029
4.87	1.940 4345	772.103 723	0.011 4473	4.97	2.158 4445	864.544 888	0.006 9331
4.88	1.944 7474	816.553 673	0.011 3334	4.98	2.162 7875	923.144 382	0.006 8641
4.89	1.949 0603	863.513 446	0.011 2205	4.99	2.167 1305	986.844 424	0.006 7957
4.90	1.953 3732	913.143 131	0.011 1090	5.00	2.171 4734	1057.444 139	0.006 7279
$\log(e^u)$	$\log(e^u)$	e^u	e^{-u}	$\log(e^u)$	$\log(e^u)$	e^u	e^{-u}

The Exponential.

n	$\log_e(a^n)$	a^n	a^{-n}	n	$\log_e(a^n)$	a^n	a^{-n}
5.00	2.171 4721	148.413 130	0.006 7370	5.30	2.688 6047	211.691 932	0.004 6838
.01	.175 8154	149.004 730	.006 6789	.51	.264 9639	212.151 127	.004 6961
.02	.350 1573	151.171 301	.006 6015	.52	.529 3985	212.605 017	.004 7085
.03	.525 3012	153.033 013	.006 5388	.53	.793 8085	213.053 914	.004 7209
.04	.699 4412	154.470 015	.006 4737	.54	1.058 1944	213.497 799	.004 7325
5.05	2.303 1871	156.022 453	0.006 4063	5.35	2.950 3341	217.337 570	0.004 7825
.05	.872 3301	157.290 510	.006 3450	.55	1.314 6771	217.812 870	.004 7949
.07	1.201 8730	159.121 327	.006 2851	.57	1.579 0301	218.241 003	.004 8065
.08	1.376 2160	160.774 089	.006 2260	.58	1.843 3831	218.662 117	.004 8181
.09	1.550 5590	162.389 862	.006 1581	.59	2.107 7361	219.073 230	.004 8297
5.10	2.214 9919	164.021 907	0.006 0967	5.60	2.442 0491	220.451 407	0.004 6629
.11	.219 2438	165.070 355	.006 0310	.61	2.706 4021	220.841 238	.004 6641
.12	.433 5877	167.335 350	.005 9700	.62	2.970 7551	221.219 351	.004 6653
.13	.647 9317	169.617 118	.005 9100	.63	3.235 1081	221.585 464	.004 6665
.14	.862 2756	171.915 708	.005 8527	.64	3.499 4611	221.940 577	.004 6677
5.15	2.236 6066	172.431 400	0.005 7894	5.65	2.451 2638	221.901 365	0.004 5125
.15	.239 9395	174.164 455	.005 7317	.66	3.755 6168	222.248 611	.004 5137
.17	.453 3825	175.014 817	.005 6840	.67	4.019 9698	222.584 724	.004 5149
.18	.667 8255	177.082 811	.005 6280	.68	4.284 3228	222.909 837	.004 5161
.19	.882 2685	179.078 533	.005 5720	.69	4.548 6758	223.224 950	.004 5173
5.20	2.258 3113	181.292 212	0.005 5166	5.70	2.473 4785	223.507 491	0.004 3610
.21	.262 0713	183.084 058	.005 4617	.71	4.797 8315	223.841 604	.004 3622
.22	.476 5142	184.433 181	.005 4073	.72	5.062 1845	224.164 717	.004 3634
.23	.690 9571	186.790 804	.005 3535	.73	5.326 5375	224.476 830	.004 3646
.24	.905 4001	188.490 803	.005 3003	.74	5.590 8905	224.777 943	.004 3658
5.25	2.280 6360	190.566 260	0.005 2475	5.75	2.497 1031	224.991 056	0.004 1858
.25	.284 3890	192.481 491	.005 1951	.76	5.854 2461	225.187 169	.004 1870
.27	.500 1319	194.415 003	.005 1430	.77	6.118 3891	225.372 282	.004 1882
.28	.715 8748	196.390 375	.005 0911	.78	6.382 5321	225.546 395	.004 1894
.29	.931 6177	198.411 436	.005 0418	.79	6.646 6751	225.709 508	.004 1906
5.30	2.301 7668	200.337 810	0.004 9916	5.80	2.518 1063	226.000 570	0.004 0276
.31	.306 1037	202.359 228	.004 9419	.81	5.874 2493	226.181 683	.004 0288
.32	.520 5466	204.433 882	.004 8928	.82	6.138 3923	226.351 796	.004 0299
.33	.735 0895	206.561 971	.004 8441	.83	6.402 5353	226.511 909	.004 0311
.34	.949 6324	208.744 710	.004 7959	.84	6.666 6783	226.662 022	.004 0322
5.35	2.323 4755	210.668 298	0.004 7381	5.85	2.530 6322	227.021 381	0.003 8709
.35	.327 8481	212.721 906	.004 7000	.86	6.930 7712	227.171 494	.003 8721
.37	.542 2911	214.862 885	.004 6541	.87	7.194 9142	227.311 607	.003 8732
.38	.756 8341	217.022 275	.004 6078	.88	7.459 0572	227.441 720	.003 8744
.39	.971 3771	219.203 381	.004 5620	.89	7.723 2002	227.561 833	.003 8755
5.40	2.345 1902	221.006 416	0.004 5166	5.90	2.542 1374	227.681 946	0.003 7134
.41	.351 5331	223.061 588	.004 4716	.91	7.987 2804	227.802 059	.003 7146
.42	.566 0761	225.189 122	.004 4271	.92	8.251 4234	227.912 172	.003 7157
.43	.780 6191	227.341 215	.004 3831	.93	8.515 5664	228.012 285	.003 7168
.44	.995 1621	229.514 183	.004 3395	.94	8.779 7094	228.112 398	.003 7179
5.45	2.366 9029	232.728 166	0.004 2951	5.95	2.554 0542	228.181 330	0.003 6068
.45	.371 2170	235.007 421	.004 2510	.96	9.043 851	228.281 443	.003 6080
.47	.585 7600	237.460 931	.004 2112	.97	9.307 9941	228.371 556	.003 6091
.48	.800 3030	239.994 707	.004 1681	.98	9.572 1371	228.461 669	.003 6102
.49	.101 8460	242.617 807	.004 1276	.99	9.836 2801	228.551 782	.003 6113
5.50	2.388 6197	244.491 932	0.004 0858	6.00	2.605 7669	243.428 793	0.003 4788
$\log_e(a^n)$	$\log_e(a^n)$	a^n	a^{-n}	$\log_e(a^n)$	$\log_e(a^n)$	a^n	a^{-n}

MITHONIAN TABLES

The Exponential.

n	$\log n(n^2)$	e^n	e^{-n}
1	43420 44810	2.71 828 183	0.367 879 441
2	8.686 89038	7.38 903 610	0.135 335 283
3	1.39348 31657	20.0 855 369	(1) .007 370 184
4	1.72377 79470	54.5 981 800	(1) .183 156 280
5	2.17147 24095	148. 413 159	(2) .073 704 700
6	2.60576 68114	403. 428 703	(2) .047 873 218
7	3.04906 13731	109 6.63 316	(3) .031 881 666
8	3.47435 58552	298 0.96 799	(3) .335 .462 628
9	3.92865 03174	810 3.68 303	(3) .123 400 804
10	4.34294 48190	220 26.4 058	(4) .453 650 298
11	4.77723 93009	508 74.1 417	(4) .169 017 008
12	5.21153 37828	102 754. 701	(5) .644 481 235
13	5.64582 82647	442 413. 312	(5) .226 032 041
14	6.08012 27466	120 260 4.28	(6) .831 528 719
15	6.51441 72285	325 904 7.37	(6) .305 902 321
16	6.94871 17105	888 611 0.52	(6) .112 535 175
17	7.38301 61924	241 549 52.8	(7) .413 693 772
18	7.81730 06743	686 930 60.1	(7) .142 200 797
19	8.25159 51562	178 482 301.	(8) .500 279 644
20	8.68588 96381	485 168 195.	(8) .200 115 203
21	9.12018 41200	131 881 573 [1]	(9) .758 290 043
22	9.55447 86019	358 291 285 [1]	(9) .278 026 809
23	9.98877 30838	974 280 345 [1]	(9) .102 618 796
24	10.42306 75657	264 891 221 [2]	(10) .377 513 454
25	10.85736 20476	720 048 923 [2]	(10) .138 899 439
26	11.29166 65295	195 739 689 [3]	(11) .500 908 903
27	11.72595 10114	532 048 241 [3]	(11) .187 982 682
28	12.16024 55033	144 625 700 [4]	(12) .694 440 011
29	12.59453 99752	393 133 439 [4]	(12) .254 366 915
30	13.02883 44571	105 851 746 [5]	(13) .935 762 297
31	13.46312 89390	270 288 467 [5]	(13) .344 207 711
32	13.89742 34209	702 639 662 [5]	(13) .126 621 635
33	14.33171 79028	214 643 580 [6]	(14) .466 888 615
34	14.76601 23847	583 461 743 [6]	(14) .171 300 813
35	15.20030 68666	158 667 345 [7]	(15) .630 511 070
36	15.63460 13485	421 123 155 [7]	(15) .231 982 283
37	16.06889 58304	117 191 424 [8]	(16) .853 304 763
38	16.50319 03123	318 589 328 [8]	(16) .313 913 299
39	16.93748 47942	865 934 004 [8]	(16) .115 482 212
40	17.37177 92761	235 385 267 [9]	(17) .424 835 426
41	17.80607 37580	630 843 003 [9]	(17) .150 288 219
42	18.24036 82399	173 937 204 [10]	(18) .574 952 235
43	18.67466 27218	472 783 947 [10]	(18) .211 513 104
44	19.10895 72037	128 516 001 [11]	(19) .778 113 224
45	19.54325 16856	349 349 711 [11]	(19) .280 251 898
46	19.97754 61675	949 611 942 [11]	(19) .105 300 174
47	20.41184 06495	258 131 289 [12]	(20) .387 309 763
48	20.84613 51314	701 673 971 [12]	(20) .142 516 468
49	21.28042 96133	190 731 657 [13]	(21) .524 293 566
50	21.71472 40952	518 479 353 [13]	(21) .199 874 085

The numbers in square brackets denote the numbers of figures between the last figure given and the decimal point; for example, the first nine figures of e^9 are 51870553, and there are 13 additional figures before the decimal point is reached. The numbers in parentheses denote the numbers of ciphers between the decimal point and the first significant figure; for example, in e^{-20} there are 21 ciphers between the decimal point and the figures 19874985.

The Exponential.

x	$\log(e^x)$	e^x	e^{-x}
51	22.11901 85773	140 034 065 [61]	4.12 209 547 406
52	22.28541 35969	384 080 860 [61]	4.12 201 037 507
53	22.46120 75109	101 137 391 [61]	4.12 090 234 005
54	22.64506 20235	268 075 430 [61]	4.12 353 350 867
55	22.83659 69317	709 478 547 [61]	4.12 129 025 011
56	23.03539 03840	200 005 930 [61]	4.12 427 684 355
57	23.24128 54985	508 572 000 [61]	4.12 175 790 400
58	23.45497 03901	131 553 891 [61]	4.12 067 025 393
59	23.67637 44423	330 121 030 [61]	4.12 238 020 611
60	23.90576 89142	114 200 730 [61]	4.12 075 654 070
61	24.14303 33954	310 439 794 [61]	4.12 312 131 009
62	24.38825 78780	811 835 627 [61]	4.12 108 506 479
63	24.64155 23930	200 478 310 [61]	4.12 435 970 000
64	24.90291 68488	523 511 068 [61]	4.12 160 284 069
65	25.17244 13217	130 388 651 [61]	4.12 500 000 013
66	25.45033 58090	330 238 601 [61]	4.12 212 052 201
67	25.73677 02875	825 230 417 [61]	4.12 501 400 445
68	26.03182 47611	200 427 605 [61]	4.12 301 238 211
69	26.33561 92513	505 308 173 [61]	4.12 101 074 638
70	26.64820 37432	125 543 897 [61]	4.12 307 544 971
71	26.96968 81551	310 217 123 [61]	4.12 101 135 653
72	27.29999 26070	785 867 175 [61]	4.12 501 001 606
73	27.63914 71299	200 230 264 [61]	4.12 307 025 088
74	27.98729 16608	505 395 388 [61]	4.12 101 130 005
75	28.34444 61447	125 324 300 [61]	4.12 307 803 609
76	28.71069 06275	310 381 039 [61]	4.12 101 415 370
77	29.08603 51104	775 451 339 [61]	4.12 301 511 002
78	29.47047 95933	190 811 200 [61]	4.12 101 300 481
79	29.86392 40762	480 828 107 [61]	4.12 300 601 473
80	30.26636 85591	120 060 208 [61]	4.12 101 305 109
81	30.67781 30420	300 009 211 [61]	4.12 301 077 200
82	31.09825 75249	750 300 606 [61]	4.12 101 200 971
83	31.52770 20078	180 380 370 [61]	4.12 301 501 501
84	31.96614 64907	450 907 212 [61]	4.12 101 300 603
85	32.41359 09736	110 401 271 [61]	4.12 301 600 000
86	32.87003 54565	270 541 660 [61]	4.12 101 377 031
87	33.33547 99394	680 603 013 [61]	4.12 301 501 143
88	33.80992 44223	170 161 630 [61]	4.12 101 300 000
89	34.29336 89052	420 051 282 [61]	4.12 301 200 395
90	34.78581 33881	100 010 339 [61]	4.12 101 301 200
91	35.28725 78710	240 260 000 [61]	4.12 301 400 320
92	35.79770 23539	590 760 811 [61]	4.12 101 301 000
93	36.31714 68368	140 123 554 [61]	4.12 301 005 707
94	36.84560 13197	340 317 622 [61]	4.12 101 005 520
95	37.38304 58026	810 123 001 [61]	4.12 301 005 200
96	37.92949 02855	200 315 810 [61]	4.12 301 000 200
97	38.48493 47684	500 813 172 [61]	4.12 301 000 211
98	39.04937 92513	120 207 005 [61]	4.12 301 000 200
99	39.62282 37342	290 003 012 [61]	4.12 301 101 100
100	40.20526 82171	700 811 711 [61]	4.12 301 007 508

The numbers in square brackets denote the numbers of figures between the last figure given and the decimal point; for example, the first nine figures of e^{51} are 518370553, and there are 13 additional figures before the decimal point is reached. The numbers in parentheses denote the numbers of ciphers between the decimal point and the first significant figure; for example, in e^{-51} there are 21 ciphers between the decimal point and the figures 192872985.

Auxiliary Table for Interpolation of Log₁₀(e^x).

(p = n × 43429.44819 . . .)

n	p	n	p	n	p	n	p	n	p
0.000	000	0.090	2171	0.300	4343	0.150	6514	0.200	8286
.001	043	.051	2215	.101	4386	.151	6558	.201	8329
.002	087	.052	2258	.102	4430	.152	6601	.202	8373
.003	130	.053	2302	.103	4473	.153	6645	.203	8416
.004	174	.054	2345	.104	4517	.154	6688	.204	8460
0.005	217	0.055	2389	0.105	4560	0.155	6732	0.205	8503
.006	261	.056	2432	.106	4604	.156	6775	.206	8546
.007	304	.057	2475	.107	4647	.157	6818	.207	8590
.008	347	.058	2519	.108	4690	.158	6862	.208	8633
.009	391	.059	2562	.109	4734	.159	6905	.209	8677
0.010	434	0.060	2606	0.110	4777	0.160	6949	0.210	8720
.011	478	.061	2649	.111	4821	.161	6992	.211	8764
.012	521	.062	2693	.112	4864	.162	7036	.212	8807
.013	565	.063	2736	.113	4908	.163	7079	.213	8851
.014	608	.064	2779	.114	4951	.164	7123	.214	8894
0.015	651	0.065	2823	0.115	4994	0.165	7166	0.215	8937
.016	695	.066	2866	.116	5038	.166	7209	.216	8981
.017	738	.067	2910	.117	5081	.167	7253	.217	9024
.018	782	.068	2953	.118	5125	.168	7296	.218	9068
.019	825	.069	2997	.119	5168	.169	7340	.219	9111
0.020	869	0.070	3040	0.120	5212	0.170	7383	0.220	9154
.021	912	.071	3083	.121	5255	.171	7426	.221	9198
.022	955	.072	3127	.122	5298	.172	7470	.222	9241
.023	999	.073	3170	.123	5342	.173	7513	.223	9285
.024	1042	.074	3214	.124	5385	.174	7557	.224	9328
0.025	1086	0.075	3257	0.125	5429	0.175	7600	0.225	9372
.026	1129	.076	3301	.126	5472	.176	7644	.226	9415
.027	1173	.077	3344	.127	5516	.177	7687	.227	9459
.028	1216	.078	3387	.128	5559	.178	7730	.228	9502
.029	1259	.079	3431	.129	5602	.179	7774	.229	9545
0.030	1303	0.080	3474	0.130	5646	0.180	7817	0.230	9589
.031	1346	.081	3518	.131	5689	.181	7861	.231	10032
.032	1390	.082	3561	.132	5733	.182	7904	.232	10076
.033	1433	.083	3605	.133	5776	.183	7948	.233	10119
.034	1477	.084	3648	.134	5820	.184	7991	.234	10163
0.035	1520	0.085	3692	0.135	5863	0.185	8035	0.235	10206
.036	1563	.086	3735	.136	5906	.186	8078	.236	10249
.037	1607	.087	3778	.137	5950	.187	8121	.237	10293
.038	1650	.088	3822	.138	5993	.188	8165	.238	10336
.039	1694	.089	3865	.139	6037	.189	8208	.239	10380
0.040	1737	0.090	3909	0.140	6080	0.190	8252	0.240	10423
.041	1781	.091	3952	.141	6124	.191	8295	.241	10466
.042	1824	.092	3996	.142	6167	.192	8338	.242	10510
.043	1867	.093	4039	.143	6210	.193	8382	.243	10553
.044	1911	.094	4082	.144	6254	.194	8425	.244	10597
0.045	1954	0.095	4126	0.145	6297	0.195	8469	0.245	10640
.046	1998	.096	4169	.146	6341	.196	8512	.246	10684
.047	2041	.097	4213	.147	6384	.197	8556	.247	10727
.048	2085	.098	4256	.148	6428	.198	8599	.248	10771
.049	2128	.099	4300	.149	6471	.199	8642	.249	10814
0.050	2171	0.100	4343	0.150	6514	0.200	8686	0.250	10857
n	p	n	p	n	p	n	p	n	p

Auxiliary Table for Interpolation of Log₁₀(e^x).

$$(p = n \times .13132 + .86867 \dots)$$

n	p	n	p	n	p	n	p	n	p
0.250	10657	0.300	13032	0.350	15381	0.400	17702	0.450	19993
.251	10660	.301	13072	.351	15421	.401	17742	.451	20037
.252	10664	.302	13116	.352	15462	.402	17783	.452	20080
.253	10668	.303	13159	.353	15503	.403	17824	.453	20124
.254	10671	.304	13203	.354	15544	.404	17865	.454	20167
0.255	10675	0.305	13246	0.355	15587	0.405	17906	0.455	20210
.256	11115	.306	13289	.356	15628	.406	17947	.456	20254
.257	11160	.307	13331	.357	15670	.407	17988	.457	20297
.258	11205	.308	13376	.358	15713	.408	18029	.458	20341
.259	11248	.309	13419	.359	15754	.409	18070	.459	20384
0.260	11293	0.310	13463	0.360	15795	0.410	18111	0.460	20428
.261	11335	.311	13507	.361	15838	.411	18152	.461	20471
.262	11379	.312	13550	.362	15880	.412	18193	.462	20515
.263	11424	.313	13593	.363	15923	.413	18234	.463	20558
.264	11468	.314	13637	.364	15964	.414	18275	.464	20602
0.265	11509	0.315	13680	0.365	15995	0.415	18316	0.465	20645
.266	11552	.316	13724	.366	16038	.416	18357	.466	20689
.267	11596	.317	13767	.367	16080	.417	18398	.467	20732
.268	11639	.318	13811	.368	16123	.418	18439	.468	20776
.269	11683	.319	13854	.369	16165	.419	18480	.469	20819
0.270	11726	0.320	13897	0.370	16206	0.420	18521	0.470	20863
.271	11769	.321	13941	.371	16248	.421	18562	.471	20906
.272	11813	.322	13984	.372	16290	.422	18603	.472	20950
.273	11856	.323	14028	.373	16333	.423	18644	.473	20993
.274	11900	.324	14071	.374	16374	.424	18685	.474	21037
0.275	11943	0.325	14115	0.375	16416	0.425	18726	0.475	21080
.276	11987	.326	14158	.376	16458	.426	18767	.476	21124
.277	12030	.327	14201	.377	16500	.427	18808	.477	21167
.278	12073	.328	14245	.378	16543	.428	18849	.478	21211
.279	12117	.329	14288	.379	16584	.429	18890	.479	21254
0.280	12160	0.330	14332	0.380	16626	0.430	18931	0.480	21298
.281	12204	.331	14375	.381	16668	.431	18972	.481	21341
.282	12247	.332	14419	.382	16710	.432	19013	.482	21385
.283	12290	.333	14462	.383	16753	.433	19054	.483	21428
.284	12334	.334	14505	.384	16794	.434	19095	.484	21472
0.285	12377	0.335	14549	0.385	16836	0.435	19136	0.485	21515
.286	12421	.336	14592	.386	16878	.436	19177	.486	21559
.287	12464	.337	14636	.387	16920	.437	19218	.487	21602
.288	12508	.338	14679	.388	16963	.438	19259	.488	21646
.289	12551	.339	14723	.389	17004	.439	19300	.489	21689
0.290	12595	0.340	14766	0.390	17047	0.440	19341	0.490	21733
.291	12638	.341	14810	.391	17088	.441	19382	.491	21776
.292	12681	.342	14853	.392	17130	.442	19423	.492	21820
.293	12725	.343	14896	.393	17173	.443	19464	.493	21863
.294	12768	.344	14940	.394	17214	.444	19505	.494	21907
0.295	12812	0.345	14983	0.395	17255	0.445	19546	0.495	21950
.296	12855	.346	15027	.396	17298	.446	19587	.496	21994
.297	12897	.347	15070	.397	17340	.447	19628	.497	22037
.298	12941	.348	15113	.398	17383	.448	19669	.498	22081
.299	12985	.349	15157	.399	17424	.449	19710	.499	22124
0.300	13029	0.350	15200	0.400	17467	0.450	19751	0.500	22168
e	p	e	p	e	p	e	p	e	p

TABLE V

NATURAL LOGARITHMS

NOTE.—In Table V, for n greater than 158, linear interpolation of $\log_e n$ suffices to give a value whose error is not greater than one unit in the last place.

Natural Logarithms.

n	log ₁₀	= F ₂ ²	n	log ₁₀	= F ₂ ²	n	log ₁₀	= F ₂ ²	n	log ₁₀	= F ₂ ²	n	log ₁₀	= F ₂ ²
6	—05	00	50	3.310302	2000	100	4.60512	1000	150	5.00061	1607	5.00061	1607	
7	0.00030	100000	51	3.310318	1991	101	4.60512	999	151	5.00078	1608	5.00078	1608	
8	0.00015	500000	52	3.310334	1983	102	4.60512	989	152	5.00095	1609	5.00095	1609	
9	0.00005	333333	53	3.310350	1975	103	4.60512	979	153	5.00111	1610	5.00111	1610	
10	0.00002	250000	54	3.310368	1967	104	4.60512	969	154	5.00128	1611	5.00128	1611	
5	1.60014	20000	55	3.310383	1958	105	4.60512	959	155	5.00144	1612	5.00144	1612	
6	1.70170	10000	56	3.310405	1950	106	4.60512	949	156	5.00160	1613	5.00160	1613	
7	1.81010	5136	57	3.310426	1943	107	4.60512	939	157	5.00176	1614	5.00176	1614	
8	1.92614	4200	58	3.310444	1934	108	4.60512	929	158	5.00192	1615	5.00192	1615	
9	2.04972	3414	59	3.310461	1925	109	4.60512	919	159	5.00208	1616	5.00208	1616	
10	2.18099	28000	60	3.310474	1917	110	4.60512	909	160	5.00224	1617	5.00224	1617	
11	2.31970	2301	61	3.310487	1909	111	4.60512	899	161	5.00240	1618	5.00240	1618	
12	2.46601	1933	62	3.310503	1901	112	4.60512	889	162	5.00256	1619	5.00256	1619	
13	2.61905	1602	63	3.310513	1892	113	4.60512	879	163	5.00272	1620	5.00272	1620	
14	2.77896	1343	64	3.310525	1884	114	4.60512	869	164	5.00288	1621	5.00288	1621	
15	2.93585	1147	65	3.310539	1875	115	4.60512	859	165	5.00304	1622	5.00304	1622	
16	3.09979	969	66	3.310555	1867	116	4.60512	849	166	5.00320	1623	5.00320	1623	
17	3.27131	808	67	3.310569	1858	117	4.60512	839	167	5.00336	1624	5.00336	1624	
18	3.45047	669	68	3.310585	1849	118	4.60512	829	168	5.00352	1625	5.00352	1625	
19	3.63741	549	69	3.310593	1840	119	4.60512	819	169	5.00368	1626	5.00368	1626	
20	3.83271	4500	70	3.310600	1830	120	4.60512	809	170	5.00384	1627	5.00384	1627	
21	4.03612	3691	71	3.310608	1821	121	4.60512	799	171	5.00400	1628	5.00400	1628	
22	4.24801	3045	72	3.310616	1812	122	4.60512	789	172	5.00416	1629	5.00416	1629	
23	4.46879	2541	73	3.310625	1803	123	4.60512	779	173	5.00432	1630	5.00432	1630	
24	4.69895	2107	74	3.310633	1794	124	4.60512	769	174	5.00448	1631	5.00448	1631	
25	4.93888	1700	75	3.310641	1785	125	4.60512	759	175	5.00464	1632	5.00464	1632	
26	5.18890	1396	76	3.310649	1776	126	4.60512	749	176	5.00480	1633	5.00480	1633	
27	5.44931	1147	77	3.310657	1767	127	4.60512	739	177	5.00496	1634	5.00496	1634	
28	5.72047	969	78	3.310665	1758	128	4.60512	729	178	5.00512	1635	5.00512	1635	
29	6.00279	808	79	3.310673	1749	129	4.60512	719	179	5.00528	1636	5.00528	1636	
30	6.28659	669	80	3.310680	1740	130	4.60512	709	180	5.00544	1637	5.00544	1637	
31	6.58209	549	81	3.310688	1731	131	4.60512	699	181	5.00560	1638	5.00560	1638	
32	6.88961	4500	82	3.310696	1722	132	4.60512	689	182	5.00576	1639	5.00576	1639	
33	7.20945	3691	83	3.310704	1713	133	4.60512	679	183	5.00592	1640	5.00592	1640	
34	7.54191	3045	84	3.310712	1704	134	4.60512	669	184	5.00608	1641	5.00608	1641	
35	7.88729	2541	85	3.310720	1695	135	4.60512	659	185	5.00624	1642	5.00624	1642	
36	8.24599	2107	86	3.310728	1686	136	4.60512	649	186	5.00640	1643	5.00640	1643	
37	8.61841	1700	87	3.310736	1677	137	4.60512	639	187	5.00656	1644	5.00656	1644	
38	9.00495	1396	88	3.310744	1668	138	4.60512	629	188	5.00672	1645	5.00672	1645	
39	9.40601	1147	89	3.310752	1659	139	4.60512	619	189	5.00688	1646	5.00688	1646	
40	9.82199	969	90	3.310760	1650	140	4.60512	609	190	5.00704	1647	5.00704	1647	
41	1.02657	808	91	3.310768	1641	141	4.60512	599	191	5.00720	1648	5.00720	1648	
42	1.13537	669	92	3.310776	1632	142	4.60512	589	192	5.00736	1649	5.00736	1649	
43	1.24909	549	93	3.310784	1623	143	4.60512	579	193	5.00752	1650	5.00752	1650	
44	1.36819	4500	94	3.310792	1614	144	4.60512	569	194	5.00768	1651	5.00768	1651	
45	1.49306	3691	95	3.310800	1605	145	4.60512	559	195	5.00784	1652	5.00784	1652	
46	1.62401	3045	96	3.310808	1596	146	4.60512	549	196	5.00800	1653	5.00800	1653	
47	1.76150	2541	97	3.310816	1587	147	4.60512	539	197	5.00816	1654	5.00816	1654	
48	1.90601	2107	98	3.310824	1578	148	4.60512	529	198	5.00832	1655	5.00832	1655	
49	2.05782	1700	99	3.310832	1569	149	4.60512	519	199	5.00848	1656	5.00848	1656	
50	3.91202	2000	100	4.60512	1000	150	5.00061	607	300	5.28614	990			
0 ^h	x	x ²	0 ^h	x	x ²	0 ^h	x	x ²	0 ^h	x	x ²	0 ^h	x	x ²

Natural Logarithms.

[illegible]

Natural Logarithms.

x	$\log_e x$	$\log_e x'$	x	$\log_e x$	$\log_e x'$	x	$\log_e x$	$\log_e x'$	x	$\log_e x$	$\log_e x'$
400	5.99146	250	450	6.10025	222	500	6.21470	200	550	6.30992	182
401	5.99165	249	451	6.11117	224	501	6.21661	200	551	6.31173	181
402	5.99183	249	452	6.11208	221	502	6.21850	199	552	6.31355	181
403	5.99201	248	453	6.11299	220	503	6.22039	199	553	6.31536	181
404	5.99219	248	454	6.11389	220	504	6.22228	198	554	6.31717	181
405	6.00238	247	455	6.12030	220	505	6.22417	198	555	6.31897	180
406	6.00256	246	456	6.12220	219	506	6.22605	198	556	6.32077	180
407	6.00274	246	457	6.12408	219	507	6.22793	197	557	6.32257	180
408	6.01127	245	458	6.12597	218	508	6.22981	197	558	6.32436	179
409	6.01172	244	459	6.12785	218	509	6.23169	196	559	6.32615	179
410	6.01636	244	460	6.13123	217	510	6.23357	196	560	6.32794	179
411	6.01850	243	461	6.13310	217	511	6.23545	196	561	6.32972	178
412	6.02102	243	462	6.13559	216	512	6.23732	195	562	6.33150	178
413	6.02345	242	463	6.13773	216	513	6.23919	195	563	6.33328	178
414	6.02587	242	464	6.13988	216	514	6.24106	195	564	6.33505	177
415	6.02828	241	465	6.14204	215	515	6.24293	194	565	6.33683	177
416	6.03069	240	466	6.14419	215	516	6.24479	194	566	6.33860	177
417	6.03309	240	467	6.14633	214	517	6.24665	193	567	6.34036	176
418	6.03548	239	468	6.14847	214	518	6.24851	193	568	6.34212	176
419	6.03787	239	469	6.15060	213	519	6.25036	193	569	6.34388	176
420	6.04025	238	470	6.15273	213	520	6.25221	192	570	6.34564	175
421	6.04263	238	471	6.15486	212	521	6.25405	192	571	6.34739	175
422	6.04501	237	472	6.15698	212	522	6.25589	192	572	6.34914	175
423	6.04737	236	473	6.15910	211	523	6.25772	191	573	6.35089	175
424	6.04973	236	474	6.16121	211	524	6.25955	191	574	6.35263	174
425	6.05209	235	475	6.16331	211	525	6.26138	190	575	6.35437	174
426	6.05444	235	476	6.16542	210	526	6.26320	190	576	6.35611	174
427	6.05678	234	477	6.16752	210	527	6.26502	189	577	6.35784	173
428	6.05912	234	478	6.16961	209	528	6.26684	189	578	6.35957	173
429	6.06146	233	479	6.17170	209	529	6.26866	189	579	6.36130	173
430	6.06379	233	480	6.17379	208	530	6.27048	188	580	6.36303	172
431	6.06611	232	481	6.17587	208	531	6.27229	188	581	6.36475	172
432	6.06843	231	482	6.17794	207	532	6.27410	188	582	6.36647	172
433	6.07074	231	483	6.18002	207	533	6.27591	188	583	6.36819	171
434	6.07304	230	484	6.18208	207	534	6.27772	187	584	6.36990	171
435	6.07535	230	485	6.18415	206	535	6.27952	187	585	6.37161	171
436	6.07764	229	486	6.18621	206	536	6.28133	187	586	6.37332	171
437	6.07993	229	487	6.18826	205	537	6.28313	186	587	6.37502	170
438	6.08222	228	488	6.19032	205	538	6.28493	186	588	6.37673	170
439	6.08450	228	489	6.19236	204	539	6.28672	186	589	6.37843	170
440	6.08677	227	490	6.19441	204	540	6.28852	185	590	6.38013	169
441	6.08904	227	491	6.19645	204	541	6.29031	185	591	6.38183	169
442	6.09131	226	492	6.19848	203	542	6.29210	185	592	6.38352	169
443	6.09357	226	493	6.20051	203	543	6.29389	184	593	6.38521	168
444	6.09582	225	494	6.20253	202	544	6.29568	184	594	6.38690	168
445	6.09807	225	495	6.20455	202	545	6.29746	183	595	6.38859	168
446	6.10032	224	496	6.20658	202	546	6.29924	183	596	6.39027	168
447	6.10256	224	497	6.20859	201	547	6.30102	183	597	6.39195	167
448	6.10479	223	498	6.21060	201	548	6.30280	182	598	6.39363	167
449	6.10702	223	499	6.21261	200	549	6.30458	182	599	6.39531	167
50	6.10925	222	500	6.21461	200	550	6.30636	182	600	6.39699	167
x	$\log_e x$	$\log_e x'$	x	$\log_e x$	$\log_e x'$	x	$\log_e x$	$\log_e x'$	x	$\log_e x$	$\log_e x'$

BRIDGES TABLE

Natural Logarithms.

n	log n	= F'	n	log n	= F'	n	log n	= F'	n	log n	= F'
6001	6.77693	167	650	6.81267	154	700	6.84340	143	750	6.87207	133
6002	6.77698	166	651	6.81275	154	701	6.84351	143	751	6.87211	133
6003	6.77703	166	652	6.81283	153	702	6.84363	142	752	6.87215	133
6004	6.77707	166	653	6.81291	153	703	6.84375	142	753	6.87219	133
6005	6.77712	166	654	6.81299	153	704	6.84386	142	754	6.87223	133
6006	6.77717	165	655	6.81307	153	705	6.84398	142	755	6.87227	132
6007	6.77722	165	656	6.81315	152	706	6.84410	142	756	6.87231	132
6008	6.77727	165	657	6.81323	152	707	6.84422	141	757	6.87235	132
6009	6.77732	165	658	6.81331	152	708	6.84434	141	758	6.87239	132
6010	6.77737	165	659	6.81339	152	709	6.84446	141	759	6.87243	132
6011	6.77742	164	660	6.81347	152	710	6.84458	141	760	6.87247	132
6012	6.77747	164	661	6.81355	151	711	6.84470	141	761	6.87251	131
6013	6.77752	164	662	6.81363	151	712	6.84482	140	762	6.87255	131
6014	6.77757	164	663	6.81371	151	713	6.84494	140	763	6.87259	131
6015	6.77762	164	664	6.81379	151	714	6.84506	140	764	6.87263	131
6016	6.77767	163	665	6.81387	150	715	6.84518	140	765	6.87267	131
6017	6.77772	163	666	6.81395	150	716	6.84530	140	766	6.87271	131
6018	6.77777	163	667	6.81403	150	717	6.84542	140	767	6.87275	130
6019	6.77782	163	668	6.81411	150	718	6.84554	139	768	6.87279	130
6020	6.77787	163	669	6.81419	149	719	6.84566	139	769	6.87283	130
6021	6.77792	162	670	6.81427	149	720	6.84578	139	770	6.87287	130
6022	6.77797	162	671	6.81435	149	721	6.84590	139	771	6.87291	130
6023	6.77802	162	672	6.81443	149	722	6.84602	139	772	6.87295	130
6024	6.77807	162	673	6.81451	149	723	6.84614	138	773	6.87299	130
6025	6.77812	162	674	6.81459	148	724	6.84626	138	774	6.87303	130
6026	6.77817	161	675	6.81467	148	725	6.84638	138	775	6.87307	129
6027	6.77822	161	676	6.81475	148	726	6.84650	138	776	6.87311	129
6028	6.77827	161	677	6.81483	148	727	6.84662	138	777	6.87315	129
6029	6.77832	161	678	6.81491	147	728	6.84674	137	778	6.87319	129
6030	6.77837	161	679	6.81499	147	729	6.84686	137	779	6.87323	128
6031	6.77842	160	680	6.81507	147	730	6.84698	137	780	6.87327	128
6032	6.77847	160	681	6.81515	147	731	6.84710	137	781	6.87331	128
6033	6.77852	160	682	6.81523	147	732	6.84722	137	782	6.87335	128
6034	6.77857	160	683	6.81531	146	733	6.84734	136	783	6.87339	128
6035	6.77862	160	684	6.81539	146	734	6.84746	136	784	6.87343	128
6036	6.77867	159	685	6.81547	146	735	6.84758	136	785	6.87347	127
6037	6.77872	159	686	6.81555	146	736	6.84770	136	786	6.87351	127
6038	6.77877	159	687	6.81563	146	737	6.84782	136	787	6.87355	127
6039	6.77882	159	688	6.81571	145	738	6.84794	135	788	6.87359	127
6040	6.77887	159	689	6.81579	145	739	6.84806	135	789	6.87363	127
6041	6.77892	158	690	6.81587	145	740	6.84818	135	790	6.87367	127
6042	6.77897	158	691	6.81595	145	741	6.84830	135	791	6.87371	126
6043	6.77902	158	692	6.81603	145	742	6.84842	135	792	6.87375	126
6044	6.77907	158	693	6.81611	144	743	6.84854	134	793	6.87379	126
6045	6.77912	158	694	6.81619	144	744	6.84866	134	794	6.87383	126
6046	6.77917	157	695	6.81627	144	745	6.84878	134	795	6.87387	126
6047	6.77922	157	696	6.81635	144	746	6.84890	134	796	6.87391	125
6048	6.77927	157	697	6.81643	143	747	6.84902	134	797	6.87395	125
6049	6.77932	157	698	6.81651	143	748	6.84914	134	798	6.87399	125
6050	6.77937	157	699	6.81659	143	749	6.84926	133	799	6.87403	125
6051	6.77942	156	700	6.81667	143	750	6.84938	133	800	6.87407	125

Natural Logarithms.

n	log n	= F ₁	n	log n	= F ₁	n	log n	= F ₁	n	log n	= F ₁
800	5.68461	125	850	5.74524	118	900	5.80239	111	950	5.8546	105
801	5.68585	125	851	5.74641	118	901	5.80351	111	951	5.85571	105
802	5.68711	125	852	5.74752	117	902	5.80461	111	952	5.85681	105
803	5.68835	125	853	5.74860	117	903	5.80572	111	953	5.85794	105
804	5.68950	124	854	5.74963	117	904	5.80683	111	954	5.85906	105
805	5.69081	124	855	5.75110	117	905	5.80793	110	955	5.86017	105
806	5.69208	124	856	5.75227	117	906	5.80901	110	956	5.86127	105
807	5.69332	124	857	5.75344	117	907	5.81011	110	957	5.86238	104
808	5.69456	124	858	5.75460	117	908	5.81124	110	958	5.86348	104
809	5.69580	124	859	5.75577	116	909	5.81235	110	959	5.86459	104
810	5.69703	123	860	5.75693	116	910	5.81344	110	960	5.86569	104
811	5.69828	123	861	5.75809	116	911	5.81451	110	961	5.86679	104
812	5.69950	123	862	5.75926	116	912	5.81561	110	962	5.86789	104
813	5.70073	123	863	5.76041	116	913	5.81667	110	963	5.86899	104
814	5.70196	123	864	5.76157	116	914	5.81783	109	964	5.87009	104
815	5.70319	123	865	5.76273	116	915	5.81892	109	965	5.87119	104
816	5.70441	123	866	5.76388	115	916	5.82000	109	966	5.87229	104
817	5.70564	122	867	5.76504	115	917	5.82111	109	967	5.87339	104
818	5.70686	122	868	5.76619	115	918	5.82220	109	968	5.87449	103
819	5.70808	122	869	5.76734	115	919	5.82329	109	969	5.87559	103
820	5.70930	122	870	5.76849	115	920	5.82437	109	970	5.87669	103
821	5.71052	122	871	5.76964	115	921	5.82546	109	971	5.87779	103
822	5.71174	122	872	5.77079	115	922	5.82655	108	972	5.87889	103
823	5.71295	122	873	5.77194	115	923	5.82763	108	973	5.87999	103
824	5.71417	121	874	5.77308	114	924	5.82871	108	974	5.88109	103
825	5.71538	121	875	5.77422	114	925	5.82979	108	975	5.88219	103
826	5.71659	121	876	5.77537	114	926	5.83087	108	976	5.88329	102
827	5.71780	121	877	5.77651	114	927	5.83195	108	977	5.88439	102
828	5.71901	121	878	5.77765	114	928	5.83303	108	978	5.88549	102
829	5.72022	121	879	5.77878	114	929	5.83411	108	979	5.88659	102
830	5.72143	120	880	5.77992	114	930	5.83518	108	980	5.88769	102
831	5.72263	120	881	5.78106	114	931	5.83626	107	981	5.88879	102
832	5.72383	120	882	5.78219	113	932	5.83731	107	982	5.88989	102
833	5.72503	120	883	5.78333	113	933	5.83841	107	983	5.89099	102
834	5.72623	120	884	5.78446	113	934	5.83948	107	984	5.89209	102
835	5.72743	120	885	5.78559	113	935	5.84055	107	985	5.89319	102
836	5.72863	120	886	5.78672	113	936	5.84162	107	986	5.89429	101
837	5.72982	119	887	5.78784	113	937	5.84268	107	987	5.89539	101
838	5.73102	119	888	5.78897	113	938	5.84375	107	988	5.89649	101
839	5.73221	119	889	5.79010	112	939	5.84482	106	989	5.89759	101
840	5.73340	119	890	5.79122	112	940	5.84588	106	990	5.89869	101
841	5.73459	119	891	5.79234	112	941	5.84694	106	991	5.89979	101
842	5.73578	119	892	5.79347	112	942	5.84801	106	992	5.90089	101
843	5.73697	119	893	5.79459	112	943	5.84907	106	993	5.90199	101
844	5.73815	118	894	5.79571	112	944	5.85013	106	994	5.90309	101
845	5.73934	118	895	5.79683	112	945	5.85118	106	995	5.90419	101
846	5.74052	118	896	5.79794	112	946	5.85224	106	996	5.90529	101
847	5.74170	118	897	5.79906	111	947	5.85330	106	997	5.90639	100
848	5.74288	118	898	5.80017	111	948	5.85435	106	998	5.90749	100
849	5.74405	118	899	5.80128	111	949	5.85541	106	999	5.90859	100
850	5.74524	118	900	5.80239	111	950	5.85646	105	1000	5.90969	100
e ^x	x	e ^{-x}	e ^x	x	e ^{-x}	e ^x	x	e ^{-x}	e ^x	x	e ^{-x}

BRITISH TABLES

Natural Logarithms.

N	Log. N	N	Log. N	N	Log. N	N	Log. N	N	Log. N
1000	6.90776	1361	7.21968	1721	7.45066	2111	7.65402	2501	7.86225
1001	6.91092	1362	7.22037	1722	7.45182	2112	7.65520	2502	7.86341
1011	6.91367	1371	7.22473	1731	7.45561	2121	7.66111	2511	7.86937
1010	6.91598	1381	7.22995	1741	7.46021	2131	7.66635	2521	7.87515
1021	6.92851	1390	7.23351	1750	7.46566	2137	7.66730	2531	7.88110
1031	6.93888	1400	7.23954	1753	7.46698	2141	7.66803	2540	7.88316
1032	6.94032	1411	7.24052	1759	7.47050	2143	7.66930	2551	7.88423
1040	6.94140	1427	7.24333	1777	7.48068	2151	7.67102	2557	7.88650
1049	6.95359	1430	7.24473	1781	7.48095	2161	7.67631	2570	7.88816
1051	6.95730	1433	7.24753	1787	7.48849	2170	7.68662	2591	7.89280
1061	6.96607	1440	7.24970	1789	7.48911	2203	7.69958	2601	7.89557
1063	6.96885	1447	7.25275	1801	7.49960	2207	7.69999	2609	7.89672
1069	6.97148	1454	7.25801	1811	7.50693	2213	7.70210	2617	7.89938
1067	6.97181	1453	7.25849	1823	7.50851	2221	7.70571	2621	7.89715
1091	6.96985	1450	7.25654	1831	7.51362	2237	7.71269	2633	7.89988
1093	6.96958	1471	7.26320	1847	7.52132	2239	7.71378	2647	7.88198
1097	7.00013	1481	7.26917	1861	7.52887	2243	7.71957	2657	7.88305
1103	7.00050	1484	7.26982	1867	7.53169	2251	7.72011	2669	7.88521
1109	7.00121	1487	7.26955	1871	7.53143	2257	7.72411	2663	7.88221
1117	7.00180	1490	7.26980	1873	7.53330	2269	7.72709	2671	7.89021
1123	7.02476	1493	7.26854	1877	7.53743	2273	7.72886	2677	7.89245
1130	7.02390	1499	7.27145	1879	7.53839	2281	7.73437	2683	7.89469
1131	7.02489	1511	7.27053	1889	7.54180	2287	7.73500	2687	7.89318
1133	7.02911	1523	7.27114	1901	7.55011	2293	7.73762	2691	7.89592
1135	7.02876	1531	7.27378	1907	7.55329	2297	7.73930	2693	7.89811
1171	7.06561	1543	7.27148	1913	7.55543	2300	7.74157	2699	7.90063
1181	7.07112	1549	7.27336	1931	7.56670	2311	7.74544	2707	7.90260
1187	7.07008	1551	7.27291	1933	7.57483	2323	7.75191	2711	7.90507
1191	7.08143	1559	7.27586	1940	7.57507	2329	7.75781	2713	7.90761
1201	7.09091	1567	7.27602	1951	7.57900	2341	7.75833	2719	7.90802
1213	7.10045	1571	7.27947	1973	7.58731	2347	7.76080	2720	7.90169
1217	7.10141	1579	7.28135	1979	7.59185	2351	7.76260	2731	7.90212
1221	7.10066	1583	7.27998	1987	7.59138	2357	7.76514	2741	7.90408
1223	7.11196	1597	7.27988	1993	7.59740	2371	7.77107	2749	7.90690
1231	7.11538	1601	7.27813	1997	7.59949	2377	7.77339	2753	7.90915
1237	7.12014	1607	7.28112	2000	7.60030	2381	7.77528	2767	7.92152
1240	7.13109	1609	7.28137	2003	7.60230	2383	7.77712	2777	7.92913
1259	7.13807	1613	7.28585	2011	7.60530	2390	7.77803	2789	7.93314
1277	7.15247	1619	7.28696	2017	7.60617	2393	7.78030	2791	7.93416
1290	7.15383	1621	7.29080	2027	7.61431	2399	7.78351	2797	7.93590
1281	7.15966	1627	7.29119	2030	7.61530	2411	7.78780	2801	7.93773
1289	7.16612	1637	7.29062	2039	7.62021	2417	7.79038	2803	7.93857
1291	7.16317	1657	7.29126	2053	7.62766	2423	7.79276	2810	7.94154
1297	7.16981	1663	7.29198	2063	7.63102	2437	7.79852	2813	7.94309
1301	7.17089	1667	7.29198	2069	7.63482	2441	7.80016	2817	7.94520
1303	7.17212	1669	7.29198	2081	7.64060	2447	7.80462	2813	7.94562
1307	7.17510	1693	7.29326	2083	7.64195	2450	7.80751	2821	7.94543
1319	7.18073	1697	7.29362	2097	7.64348	2467	7.81076	2827	7.94753
1321	7.18161	1699	7.29389	2099	7.64414	2473	7.81319	2861	7.95013
1327	7.18968	1700	7.29466	2099	7.64622	2477	7.81480	2879	7.95520
10 ^x	x	10 ^x	x	10 ^x	x	10 ^x	x	10 ^x	x

Natural Logarithm.

N	Loge	N	Loge	N	Loge	N	Loge	N	Loge
289	7.46997	313	8.10812	337	8.52852	361	8.89852	385	9.14525
290	7.47143	314	8.11021	338	8.53059	362	8.90059	386	9.14730
291	7.47289	315	8.11231	339	8.53266	363	8.90266	387	9.14935
292	7.47435	316	8.11441	340	8.53473	364	8.90473	388	9.15140
293	7.47581	317	8.11651	341	8.53680	365	8.90680	389	9.15345
294	7.47727	318	8.11861	342	8.53887	366	8.90887	390	9.15550
295	7.47873	319	8.12071	343	8.54094	367	8.91094	391	9.15755
296	7.48019	320	8.12281	344	8.54301	368	8.91301	392	9.15960
297	7.48165	321	8.12491	345	8.54508	369	8.91508	393	9.16165
298	7.48311	322	8.12701	346	8.54715	370	8.91715	394	9.16370
299	7.48457	323	8.12911	347	8.54922	371	8.91922	395	9.16575
300	7.48603	324	8.13121	348	8.55129	372	8.92129	396	9.16780
301	7.48749	325	8.13331	349	8.55336	373	8.92336	397	9.16985
302	7.48895	326	8.13541	350	8.55543	374	8.92543	398	9.17190
303	7.49041	327	8.13751	351	8.55750	375	8.92750	399	9.17395
304	7.49187	328	8.13961	352	8.55957	376	8.92957	400	9.17600
305	7.49333	329	8.14171	353	8.56164	377	8.93164		
306	7.49479	330	8.14381	354	8.56371	378	8.93371		
307	7.49625	331	8.14591	355	8.56578	379	8.93578		
308	7.49771	332	8.14801	356	8.56785	380	8.93785		
309	7.49917	333	8.15011	357	8.56992	381	8.93992		
310	7.50063	334	8.15221	358	8.57199	382	8.94199		
311	7.50209	335	8.15431	359	8.57406	383	8.94406		
312	7.50355	336	8.15641	360	8.57613	384	8.94613		
313	7.50501	337	8.15851	361	8.57820	385	8.94820		
314	7.50647	338	8.16061	362	8.58027	386	8.95027		
315	7.50793	339	8.16271	363	8.58234	387	8.95234		
316	7.50939	340	8.16481	364	8.58441	388	8.95441		
317	7.51085	341	8.16691	365	8.58648	389	8.95648		
318	7.51231	342	8.16901	366	8.58855	390	8.95855		
319	7.51377	343	8.17111	367	8.59062	391	8.96062		
320	7.51523	344	8.17321	368	8.59269	392	8.96269		
321	7.51669	345	8.17531	369	8.59476	393	8.96476		
322	7.51815	346	8.17741	370	8.59683	394	8.96683		
323	7.51961	347	8.17951	371	8.59890	395	8.96890		
324	7.52107	348	8.18161	372	8.60097	396	8.97097		
325	7.52253	349	8.18371	373	8.60304	397	8.97304		
326	7.52399	350	8.18581	374	8.60511	398	8.97511		
327	7.52545	351	8.18791	375	8.60718	399	8.97718		
328	7.52691	352	8.19001	376	8.60925	400	8.97925		
329	7.52837	353	8.19211						
330	7.52983	354	8.19421						
331	7.53129	355	8.19631						
332	7.53275	356	8.19841						
333	7.53421	357	8.19991						
334	7.53567	358	8.20201						
335	7.53713	359	8.20411						
336	7.53859	360	8.20621						
337	7.54005	361	8.20831						
338	7.54151	362	8.21041						
339	7.54297	363	8.21251						
340	7.54443	364	8.21461						
341	7.54589	365	8.21671						
342	7.54735	366	8.21881						
343	7.54881	367	8.22091						
344	7.55027	368	8.22301						
345	7.55173	369	8.22511						
346	7.55319	370	8.22721						
347	7.55465	371	8.22931						
348	7.55611	372	8.23141						
349	7.55757	373	8.23351						
350	7.55903	374	8.23561						
351	7.56049	375	8.23771						
352	7.56195	376	8.23981						
353	7.56341	377	8.24191						
354	7.56487	378	8.24401						
355	7.56633	379	8.24611						
356	7.56779	380	8.24821						
357	7.56925	381	8.25031						
358	7.57071	382	8.25241						
359	7.57217	383	8.25451						
360	7.57363	384	8.25661						
361	7.57509	385	8.25871						
362	7.57655	386	8.26081						
363	7.57801	387	8.26291						
364	7.57947	388	8.26501						
365	7.58093	389	8.26711						
366	7.58239	390	8.26921						
367	7.58385	391	8.27131						
368	7.58531	392	8.27341						
369	7.58677	393	8.27551						
370	7.58823	394	8.27761						
371	7.58969	395	8.27971						
372	7.59115	396	8.28181						
373	7.59261	397	8.28391						
374	7.59407	398	8.28601						
375	7.59553	399	8.28811						
376	7.59699	400	8.29021						
377	7.59845								
378	7.59991								
379	7.60137								
380	7.60283								
381	7.60429								
382	7.60575								
383	7.60721								
384	7.60867								
385	7.61013								
386	7.61159								
387	7.61305								
388	7.61451								
389	7.61597								
390	7.61743								
391	7.61889								
392	7.62035								
393	7.62181								
394	7.62327								
395	7.62473								
396	7.62619								
397	7.62765								
398	7.62911								
399	7.63057								
400	7.63203								

Natural Logarithms.

α	Log α	α	Log α	α	Log α	α	Log α	α	Log α
4993	8.51570	5437	8.60068	5889	8.67403	6341	8.74624	6793	8.81848
4999	8.51639	5441	8.60172	5891	8.67437	6349	8.74815	6797	8.81937
5003	8.51720	5443	8.60209	5897	8.67530	6351	8.74846	6801	8.82031
5009	8.51800	5449	8.60319	5901	8.67608	6353	8.75005	6803	8.82022
5011	8.51849	5471	8.60722	5907	8.67710	6357	8.75100	6799	8.82158
5021	8.52138	5477	8.60831	5909	8.67744	6323	8.75105	6781	8.82188
5023	8.52178	5479	8.60888	5929	8.67911	6329	8.75200	6791	8.82335
5031	8.52206	5483	8.60931	5931	8.67948	6337	8.75416	6793	8.82365
5033	8.52241	5491	8.61269	5937	8.68240	6343	8.75511	6803	8.82512
5039	8.52302	5493	8.61303	5943	8.68322	6353	8.75608	6823	8.82605
5077	8.53128	5507	8.61178	5923	8.68660	6399	8.75763	6827	8.82814
5081	8.53166	5519	8.61505	5927	8.68727	6391	8.75794	6829	8.82891
5087	8.53154	5521	8.61631	5939	8.68830	6397	8.75988	6833	8.82952
5099	8.53280	5527	8.61740	5953	8.69105	6373	8.75984	6841	8.83160
5101	8.53219	5531	8.61812	5981	8.69434	6379	8.76077	6857	8.83303
5107	8.53337	5557	8.62281	5987	8.69735	6399	8.76233	6863	8.83390
5113	8.53364	5563	8.62380	6007	8.70038	6397	8.76359	6869	8.83491
5119	8.53371	5569	8.62407	6011	8.70135	6423	8.76731	6871	8.83525
5127	8.53617	5573	8.62560	6029	8.70331	6427	8.76835	6883	8.83581
5153	8.54731	5581	8.62702	6037	8.70566	6429	8.77168	6889	8.83702
5167	8.54905	5591	8.63001	6043	8.70666	6451	8.77402	6907	8.83929
5171	8.54982	5593	8.63044	6047	8.70732	6469	8.77478	6911	8.83987
5179	8.55237	5599	8.63161	6053	8.70831	6473	8.77539	6917	8.84174
5189	8.55339	5611	8.63382	6067	8.71032	6481	8.77661	6927	8.84367
5197	8.55584	5617	8.63488	6073	8.71161	6491	8.77817	6929	8.84525
5203	8.55814	5651	8.63959	6079	8.71260	6521	8.78278	6959	8.84779
5227	8.56122	5653	8.63994	6089	8.71424	6529	8.78401	6961	8.84868
5231	8.56139	5657	8.64065	6091	8.71457	6527	8.78501	6967	8.84944
5233	8.56291	5691	8.64160	6101	8.71621	6551	8.78737	6971	8.84951
5237	8.56339	5699	8.64277	6113	8.71817	6553	8.78768	6977	8.85037
5261	8.56805	5681	8.64523	6121	8.71948	6563	8.78920	6983	8.85123
5273	8.57035	5689	8.64629	6131	8.72111	6569	8.79012	6991	8.85238
5279	8.57149	5693	8.64699	6133	8.72144	6571	8.79042	6997	8.85324
5281	8.57187	5701	8.64840	6143	8.72307	6577	8.79133	7001	8.85381
5287	8.57191	5711	8.64913	6151	8.72437	6581	8.79194	7013	8.85552
5303	8.57703	5717	8.65120	6163	8.72632	6599	8.79457	7019	8.85658
5309	8.57731	5737	8.65469	6173	8.72794	6607	8.79584	7027	8.85754
5313	8.57799	5741	8.65530	6197	8.73182	6619	8.79770	7039	8.85922
5333	8.58067	5743	8.65574	6199	8.73214	6637	8.80112	7043	8.85979
5337	8.58129	5749	8.65678	6203	8.73279	6653	8.80382	7057	8.86178
5351	8.58504	5779	8.66199	6211	8.73408	6699	8.80372	7069	8.86347
5361	8.58603	5783	8.66268	6217	8.73511	6691	8.80502	7079	8.86416
5379	8.59173	5791	8.66361	6221	8.73569	6673	8.80582	7103	8.86527
5383	8.59286	5801	8.66599	6229	8.73697	6699	8.80772	7107	8.86612
5389	8.59327	5807	8.66682	6247	8.73985	6689	8.80862	7121	8.86708
5397	8.59545	5813	8.66785	6257	8.74146	6691	8.80852	7127	8.86765
5413	8.59681	5821	8.66823	6263	8.74241	6701	8.81001	7129	8.86793
5417	8.59739	5827	8.66906	6269	8.74337	6703	8.81031	7151	8.86901
5419	8.59767	5839	8.67231	6271	8.74369	6709	8.81121	7139	8.86913
5421	8.59888	5843	8.67300	6277	8.74465	6719	8.81269	7177	8.87064

BRITISH TABLES

Natural Logarithm.

N	Log N	N	Log N	N	Log N	N	Log N	N	Log N
7187	8.85603	7671	8.88666	8155	8.90871	8639	8.93076	9123	8.95281
7193	8.85620	7677	8.88683	8161	8.90888	8645	8.93093	9129	8.95298
7207	8.85650	7713	8.89155	8211	8.91362	8695	8.93567	9179	8.95772
7211	8.85658	7719	8.89163	8217	8.91370	8701	8.93575	9185	8.95780
7213	8.85664	7725	8.89171	8223	8.91378	8707	8.93583	9191	8.95788
7219	8.85672	7731	8.89179	8229	8.91386	8713	8.93591	9197	8.95796
7225	8.85680	7737	8.89187	8235	8.91394	8719	8.93599	9203	8.95804
7231	8.85688	7743	8.89195	8241	8.91402	8725	8.93607	9209	8.95812
7237	8.85696	7749	8.89203	8247	8.91410	8731	8.93615	9215	8.95820
7243	8.85704	7755	8.89211	8253	8.91418	8737	8.93623	9221	8.95828
7249	8.85712	7761	8.89219	8259	8.91426	8743	8.93631	9227	8.95836
7255	8.85720	7767	8.89227	8265	8.91434	8749	8.93639	9233	8.95844
7261	8.85728	7773	8.89235	8271	8.91442	8755	8.93647	9239	8.95852
7267	8.85736	7779	8.89243	8277	8.91450	8761	8.93655	9245	8.95860
7273	8.85744	7785	8.89251	8283	8.91458	8767	8.93663	9251	8.95868
7279	8.85752	7791	8.89259	8289	8.91466	8773	8.93671	9257	8.95876
7285	8.85760	7797	8.89267	8295	8.91474	8779	8.93679	9263	8.95884
7291	8.85768	7803	8.89275	8301	8.91482	8785	8.93687	9269	8.95892
7297	8.85776	7809	8.89283	8307	8.91490	8791	8.93695	9275	8.95900
7303	8.85784	7815	8.89291	8313	8.91498	8797	8.93703	9281	8.95908
7309	8.85792	7821	8.89299	8319	8.91506	8803	8.93711	9287	8.95916
7315	8.85800	7827	8.89307	8325	8.91514	8809	8.93719	9293	8.95924
7321	8.85808	7833	8.89315	8331	8.91522	8815	8.93727	9299	8.95932
7327	8.85816	7839	8.89323	8337	8.91530	8821	8.93735	9305	8.95940
7333	8.85824	7845	8.89331	8343	8.91538	8827	8.93743	9311	8.95948
7339	8.85832	7851	8.89339	8349	8.91546	8833	8.93751	9317	8.95956
7345	8.85840	7857	8.89347	8355	8.91554	8839	8.93759	9323	8.95964
7351	8.85848	7863	8.89355	8361	8.91562	8845	8.93767	9329	8.95972
7357	8.85856	7869	8.89363	8367	8.91570	8851	8.93775	9335	8.95980
7363	8.85864	7875	8.89371	8373	8.91578	8857	8.93783	9341	8.95988
7369	8.85872	7881	8.89379	8379	8.91586	8863	8.93791	9347	8.95996
7375	8.85880	7887	8.89387	8385	8.91594	8869	8.93799	9353	8.96004
7381	8.85888	7893	8.89395	8391	8.91602	8875	8.93807	9359	8.96012
7387	8.85896	7899	8.89403	8397	8.91610	8881	8.93815	9365	8.96020
7393	8.85904	7905	8.89411	8403	8.91618	8887	8.93823	9371	8.96028
7399	8.85912	7911	8.89419	8409	8.91626	8893	8.93831	9377	8.96036
7405	8.85920	7917	8.89427	8415	8.91634	8899	8.93839	9383	8.96044
7411	8.85928	7923	8.89435	8421	8.91642	8905	8.93847	9389	8.96052
7417	8.85936	7929	8.89443	8427	8.91650	8911	8.93855	9395	8.96060
7423	8.85944	7935	8.89451	8433	8.91658	8917	8.93863	9401	8.96068
7429	8.85952	7941	8.89459	8439	8.91666	8923	8.93871	9407	8.96076
7435	8.85960	7947	8.89467	8445	8.91674	8929	8.93879	9413	8.96084
7441	8.85968	7953	8.89475	8451	8.91682	8935	8.93887	9419	8.96092
7447	8.85976	7959	8.89483	8457	8.91690	8941	8.93895	9425	8.96100
7453	8.85984	7965	8.89491	8463	8.91698	8947	8.93903	9431	8.96108
7459	8.85992	7971	8.89499	8469	8.91706	8953	8.93911	9437	8.96116
7465	8.86000	7977	8.89507	8475	8.91714	8959	8.93919	9443	8.96124
7471	8.86008	7983	8.89515	8481	8.91722	8965	8.93927	9449	8.96132
7477	8.86016	7989	8.89523	8487	8.91730	8971	8.93935	9455	8.96140
7483	8.86024	7995	8.89531	8493	8.91738	8977	8.93943	9461	8.96148
7489	8.86032	8001	8.89539	8499	8.91746	8983	8.93951	9467	8.96156
7495	8.86040	8007	8.89547	8505	8.91754	8989	8.93959	9473	8.96164
7501	8.86048	8013	8.89555	8511	8.91762	8995	8.93967	9479	8.96172
7507	8.86056	8019	8.89563	8517	8.91770	9001	8.93975	9485	8.96180
7513	8.86064	8025	8.89571	8523	8.91778	9007	8.93983	9491	8.96188
7519	8.86072	8031	8.89579	8529	8.91786	9013	8.93991	9497	8.96196
7525	8.86080	8037	8.89587	8535	8.91794	9019	8.94000	9503	8.96204
7531	8.86088	8043	8.89595	8541	8.91802	9025	8.94008	9509	8.96212
7537	8.86096	8049	8.89603	8547	8.91810	9031	8.94016	9515	8.96220
7543	8.86104	8055	8.89611	8553	8.91818	9037	8.94024	9521	8.96228
7549	8.86112	8061	8.89619	8559	8.91826	9043	8.94032	9527	8.96236
7555	8.86120	8067	8.89627	8565	8.91834	9049	8.94040	9533	8.96244
7561	8.86128	8073	8.89635	8571	8.91842	9055	8.94048	9539	8.96252
7567	8.86136	8079	8.89643	8577	8.91850	9061	8.94056	9545	8.96260
7573	8.86144	8085	8.89651	8583	8.91858	9067	8.94064	9551	8.96268
7579	8.86152	8091	8.89659	8589	8.91866	9073	8.94072	9557	8.96276
7585	8.86160	8097	8.89667	8595	8.91874	9079	8.94080	9563	8.96284
7591	8.86168	8103	8.89675	8601	8.91882	9085	8.94088	9569	8.96292
7597	8.86176	8109	8.89683	8607	8.91890	9091	8.94096	9575	8.96300
7603	8.86184	8115	8.89691	8613	8.91898	9097	8.94104	9581	8.96308
7609	8.86192	8121	8.89699	8619	8.91906	9103	8.94112	9587	8.96316
7615	8.86200	8127	8.89707	8625	8.91914	9109	8.94120	9593	8.96324
7621	8.86208	8133	8.89715	8631	8.91922	9115	8.94128	9599	8.96332
7627	8.86216	8139	8.89723	8637	8.91930	9121	8.94136	9605	8.96340
7633	8.86224	8145	8.89731	8643	8.91938	9127	8.94144	9611	8.96348
7639	8.86232	8151	8.89739	8649	8.91946	9133	8.94152	9617	8.96356
7645	8.86240	8157	8.89747	8655	8.91954	9139	8.94160	9623	8.96364
7651	8.86248	8163	8.89755	8661	8.91962	9145	8.94168	9629	8.96372
7657	8.86256	8169	8.89763	8667	8.91970	9151	8.94176	9635	8.96380
7663	8.86264	8175	8.89771	8673	8.91978	9157	8.94184	9641	8.96388
7669	8.86272	8181	8.89779	8679	8.91986	9163	8.94192	9647	8.96396
7675	8.86280	8187	8.89787	8685	8.91994	9169	8.94200	9653	8.96404
7681	8.86288	8193	8.89795	8691	8.92002	9175	8.94208	9659	8.96412
7687	8.86296	8199	8.89803	8697	8.92010	9181	8.94216	9665	8.96420
7693	8.86304	8205	8.89811	8703	8.92018	9187	8.94224	9671	8.96428
7699	8.86312	8211	8.89819	8709	8.92026	9193	8.94232	9677	8.96436
7705	8.86320	8217	8.89827	8715	8.92034	9199	8.94240	9683	8.96444
7711	8.86328	8223	8.89835	8721	8.92042	9205	8.94248	9689	8.96452
7717	8.86336	8229	8.89843	8727	8.92050	9211	8.94256	9695	8.96460
7723	8.86344	8235	8.89851	8733	8.92058	9217	8.94264	9701	8.96468
7729	8.86352	8241	8.89859	8739	8.92066	9223	8.94272	9707	8.96476
7735	8.86360	8247	8.89867	8745	8.92074	9229	8.94280	9713	8.96484
7741	8.86368	8253	8.89875	8751	8.92082	9235	8.94288	9719	8.96492
7747	8.86376	8259	8.89883	8757	8.92090	9241	8.94296	9725	8.96500
7753	8.86384	8265	8.89891	8763	8.92098	9247	8.94304	9731	8.96508
7759	8.86392	8271	8.89899	8769	8.92106	9253	8.94312	9737	8.96516
7765	8.86400	8277	8.89907	8775	8.92114	9259	8.94320	9743	8.96524
7771	8.86408	8283	8.89915	8781	8.92122	9265	8.94328	9749	8.96532
7777	8.86416	8289	8.89923	8787	8.92130	9271	8.94336	9755	8.96540
7783	8.86424	8295	8.89931	8793	8.92138	9277	8.94344	9761	8.96548
7789	8.86432	8301	8.89939	8799	8.92146	9283	8.94352	9767	8.96556
7795	8.86440	8307	8.89947	8805	8.92154	9289	8.94360	9773	8.96564
7801	8.86448	8313	8.89955	8811	8.92162	9295	8.94368	9779	8.96572
7807	8.86456	8319	8.89963	8817	8.92170	9301	8.94376	9785	8.96580
7813	8.86464	8325	8.89971	8823	8.92178	9307	8.94384	9791	8.96588
7819	8.86472	8331	8.89979	8829	8.92186	9313	8.94392	9797	8.96596
7825	8.86480	8337	8.89987	8835	8.92194	9319	8.94400	9803	8.96604
7831	8.86488	8343	8.89995	8841	8.92202	9325	8.94408	9809	8.96612
7837	8.86496	8349	8.90003	8847	8.92210	9331	8.94416	9815	8.96620
7843	8.86504	8355	8.90011	8853	8.92218	9337	8.94424	9821	8.96628
7849	8.86512	8361	8.90019	8859	8.92226	9343	8.94432	9827	8.96636
7855	8.86520	8367	8.90						

Natural Logarithms.

n	Log n	n	Log n	n	Log n	n	Log n	n	Log n
9433	0.15107	9551	0.16440	9710	0.18884	9833	0.10350	9967	0.20793
9437	0.15210	9557	0.16516	9721	0.18924	9839	0.10411	9973	0.20794
9439	0.15201	9561	0.16564	9733	0.18928	9851	0.10533	10000	0.21034
9441	0.15403	9563	0.17087	9739	0.18980	9857	0.10594	100000	11.51293
9453	0.15514	9569	0.17130	9743	0.18930	9859	0.10514		
9467	0.15557	9573	0.17191	9749	0.18994	9871	0.10736		
9473	0.15620	9580	0.17253	9757	0.18976	9883	0.10857		
9479	0.15683	9581	0.17274	9760	0.18997	9887	0.10868		
9491	0.15810	9583	0.17369	9781	0.18820	9901	0.20039		
9497	0.15873	9549	0.17461	9787	0.18881	9907	0.20040		
9511	0.16000	9551	0.17585	9791	0.18922	9923	0.20261		
9521	0.16126	9577	0.17751	9803	0.19044	9929	0.20322		
9533	0.16251	9579	0.17771	9811	0.19126	9931	0.20342		
9539	0.16314	9589	0.17875	9817	0.19187	9941	0.20412		
9547	0.16398	9597	0.17957	9829	0.19209	9949	0.20523		
e ^x	x	e ^x	x	e ^x	x	e ^x	x	e ^x	x

Coefficients for Computing,									
$F_{2n} = F_0 \pm n a \left[F'_0 \pm \frac{n}{2} a_1 + \frac{n^3}{6} \beta_2 \pm \frac{n}{12} \left(\frac{n^2}{2} - 1 \right) \gamma_0 \right].$									
n	$\frac{n^2}{2}$	Diff.	$\frac{n}{12} \left(\frac{n^2}{2} - 1 \right)$	Diff.	n	$\frac{n^2}{2}$	Diff.	$\frac{n}{12} \left(\frac{n^2}{2} - 1 \right)$	Diff.
0.00	+0.0000	0	-0.0000	0	0.25	+0.0024	9	-0.0020	7
0.01	0.0000	1	0.0008	0	0.26	0.0113	9	0.0209	8
0.02	0.0001	1	0.0017	0	0.27	0.0122	9	0.0217	7
0.03	0.0002	1	0.0025	8	0.28	0.0131	9	0.0224	8
0.04	0.0003	1	0.0033	0	0.29	0.0140	10	0.0232	7
0.05	+0.0004	2	-0.0042	8	0.30	+0.0050	10	-0.0039	7
0.06	0.0005	2	0.0050	8	0.31	0.0160	11	0.0246	7
0.07	0.0005	3	0.0058	8	0.32	0.0171	11	0.0253	7
0.08	0.0011	3	0.0065	8	0.33	0.0182	11	0.0260	7
0.09	0.0014	3	0.0075	8	0.34	0.0193	11	0.0267	7
0.10	+0.0017	3	-0.0083	8	0.35	+0.0204	12	-0.0274	7
0.11	0.0020	4	0.0091	8	0.36	0.0215	12	0.0281	6
0.12	0.0024	4	0.0099	8	0.37	0.0226	12	0.0287	6
0.13	0.0028	5	0.0107	8	0.38	0.0237	13	0.0294	7
0.14	0.0033	5	0.0110	8	0.39	0.0254	13	0.0300	6
0.15	+0.0038	5	-0.0124	8	0.40	+0.0267	13	-0.0307	6
0.16	0.0043	5	0.0132	8	0.41	0.0280	14	0.0313	6
0.17	0.0048	6	0.0140	8	0.42	0.0294	14	0.0319	6
0.18	0.0054	6	0.0148	7	0.43	0.0308	15	0.0325	6
0.19	0.0060	7	0.0155	8	0.44	0.0323	15	0.0331	6
0.20	+0.0067	7	-0.0163	8	0.45	+0.0338	15	-0.0337	6
0.21	0.0074	7	0.0171	8	0.46	0.0353	15	0.0343	5
0.22	0.0081	7	0.0179	8	0.47	0.0368	16	0.0348	5
0.23	0.0088	8	0.0187	7	0.48	0.0384	16	0.0354	5
0.24	0.0096	8	0.0194	8	0.49	0.0400	17	0.0359	5
0.25	+0.0104		-0.0202		0.50	+0.0417		-0.0365	

TABLE VI

THE GUDERMANNIAN

The Gudermannian.

u	$gd\ u$	$\sinh u$	$gd\ u$	$\cosh u$	u	$gd\ u$	$\sinh u$	$gd\ u$	$\cosh u$
0.000	0.000 0000	1.0000	0.00 00.00	200.25	0.050	0.049 9992	0.025	2 51 48.93	205.01
.001	0.001 0000	1.0000	0.01 26.86	200.25	.051	0.050 9979	0.027	2 55 41.95	205.03
.002	0.002 0000	1.0000	0.03 52.53	200.25	.052	0.051 9960	0.029	2 59 36.61	205.05
.003	0.003 0000	1.0000	0.10 18.79	200.25	.053	0.052 9938	0.030	3 02 32.92	205.06
.004	0.004 0000	1.0000	0.13 45.03	200.25	.054	0.053 9912	0.031	3 05 28.21	205.08
.005	0.005 0000	1.0000	0.17 11.32	200.25	.055	0.054 9873	0.032	3 08 23.28	205.09
.006	0.006 0000	1.0000	0.20 37.23	200.25	.056	0.055 9830	0.034	3 12 17.96	205.12
.007	0.007 0000	1.0000	0.24 03.21	200.25	.057	0.056 9782	0.035	3 15 12.71	205.13
.008	0.008 0000	1.0000	0.27 30.10	200.25	.058	0.057 9731	0.036	3 18 07.66	205.15
.009	0.009 0000	1.0000	0.30 57.35	200.25	.059	0.058 9678	0.037	3 21 02.87	205.16
.010	0.010 0000	1.0000	0.34 22.61	200.25	.060	0.059 9623	0.038	3 23 58.27	205.18
.011	0.011 0000	1.0000	0.37 48.19	200.25	.061	0.060 9565	0.039	3 26 53.86	205.19
.012	0.012 0000	1.0000	0.41 13.42	200.25	.062	0.061 9504	0.040	3 29 49.64	205.20
.013	0.013 0000	1.0000	0.44 38.32	200.25	.063	0.062 9441	0.041	3 32 45.61	205.21
.014	0.014 0000	1.0000	0.48 03.04	200.24	.064	0.063 9376	0.042	3 35 41.77	205.22
.015	0.015 0000	1.0000	0.51 27.88	200.24	.065	0.064 9309	0.043	3 38 38.12	205.23
.016	0.016 0000	1.0000	0.55 03.10	200.24	.066	0.065 9240	0.044	3 41 34.66	205.24
.017	0.017 0000	1.0000	0.58 28.31	200.23	.067	0.066 9169	0.045	3 44 31.39	205.25
.018	0.018 0000	1.0000	1.01 52.57	200.23	.068	0.067 9097	0.046	3 47 28.31	205.26
.019	0.019 0000	1.0000	1.05 18.33	200.23	.069	0.068 9024	0.047	3 50 25.42	205.27
.020	0.020 0000	1.0000	1.08 43.02	200.22	.070	0.069 8949	0.048	3 53 22.73	205.28
.021	0.021 0000	1.0000	1.12 11.24	200.22	.071	0.070 8872	0.049	3 56 20.24	205.29
.022	0.022 0000	1.0000	1.15 39.46	200.21	.072	0.071 8793	0.050	3 59 17.95	205.30
.023	0.023 0000	1.0000	1.19 07.67	200.21	.073	0.072 8712	0.051	4 02 15.86	205.31
.024	0.024 0000	1.0000	1.22 36.88	200.21	.074	0.073 8630	0.052	4 05 13.96	205.32
.025	0.025 0000	1.0000	1.25 56.68	200.20	.075	0.074 8547	0.053	4 08 12.25	205.33
.026	0.026 0000	1.0000	1.29 26.28	200.20	.076	0.075 8462	0.054	4 11 10.74	205.34
.027	0.027 0000	1.0000	1.32 46.47	200.19	.077	0.076 8376	0.055	4 14 09.42	205.35
.028	0.028 0000	1.0000	1.36 14.66	200.18	.078	0.077 8289	0.056	4 17 08.29	205.36
.029	0.029 0000	1.0000	1.39 40.81	200.18	.079	0.078 8201	0.057	4 20 07.35	205.37
.030	0.030 0000	1.0000	1.43 07.02	200.17	.080	0.079 8112	0.058	4 23 06.60	205.38
.031	0.031 0000	1.0000	1.46 33.19	200.17	.081	0.080 8022	0.059	4 26 06.04	205.39
.032	0.032 0000	1.0000	1.49 59.35	200.16	.082	0.081 7931	0.060	4 29 05.67	205.40
.033	0.033 0000	1.0000	1.53 25.50	200.15	.083	0.082 7839	0.061	4 32 05.49	205.41
.034	0.034 0000	1.0000	1.56 51.65	200.15	.084	0.083 7746	0.062	4 35 05.50	205.42
.035	0.035 0000	1.0000	1.59 17.79	200.14	.085	0.084 7652	0.063	4 38 05.71	205.43
.036	0.036 0000	1.0000	1.62 43.93	200.13	.086	0.085 7557	0.064	4 41 06.12	205.44
.037	0.037 0000	1.0000	1.65 10.09	200.12	.087	0.086 7461	0.065	4 44 06.73	205.45
.038	0.038 0000	1.0000	1.68 36.18	200.11	.088	0.087 7365	0.066	4 47 07.54	205.46
.039	0.039 0000	1.0000	1.71 02.29	200.11	.089	0.088 7268	0.067	4 50 08.55	205.47
.040	0.040 0000	1.0000	1.73 28.30	200.10	.090	0.089 7170	0.068	4 53 09.76	205.48
.041	0.041 0000	1.0000	1.76 54.40	200.09	.091	0.090 7072	0.069	4 56 11.17	205.49
.042	0.042 0000	1.0000	1.79 20.58	200.08	.092	0.091 6973	0.070	4 59 12.78	205.50
.043	0.043 0000	1.0000	1.82 46.75	200.07	.093	0.092 6874	0.071	5 02 14.59	205.51
.044	0.044 0000	1.0000	1.85 12.74	200.07	.094	0.093 6774	0.072	5 05 16.60	205.52
.045	0.045 0000	1.0000	1.87 38.70	200.06	.095	0.094 6673	0.073	5 08 18.81	205.53
.046	0.046 0000	1.0000	1.90 04.84	200.05	.096	0.095 6572	0.074	5 11 21.22	205.54
.047	0.047 0000	1.0000	1.92 30.88	200.04	.097	0.096 6470	0.075	5 14 23.83	205.55
.048	0.048 0000	1.0000	1.94 56.91	200.03	.098	0.097 6368	0.076	5 17 26.54	205.56
.049	0.049 0000	1.0000	1.97 22.93	200.02	.099	0.098 6265	0.077	5 20 29.45	205.57
.050	0.050 0000	1.0000	2 00 48.95	200.01	0.100	0.099 6162	0.078	5 23 32.56	205.58
u	$2 \tan^{-1}(e^u) = \frac{u}{2}$	$\sinh u$	$2 \tan^{-1}(e^u) = 2u$	$\cosh u$	u	$2 \tan^{-1}(e^u) = \frac{u}{2}$	$\sinh u$	$2 \tan^{-1}(e^u) = 2u$	$\cosh u$

The Gudermannian.

u	$\operatorname{gd} u$	$\operatorname{erf} u$	$\operatorname{gd} u$	$\operatorname{erf} u$	u	$\operatorname{gd} u$	$\operatorname{erf} u$	$\operatorname{gd} u$	$\operatorname{erf} u$
0.000	0.000 8157	0.000	5 43 12.99	205.20	0.150	0.149 4405	0.889	8 33 44.35	203.97
.001	.000 8157	.001	5 40 37.14	205.22	.151	.150 4384	.089	8 37 08.30	203.94
.002	.001 8157	.002	5 50 02.64	205.20	.152	.151 4361	.089	8 39 31.42	203.90
.003	.002 8157	.003	5 53 27.81	205.18	.153	.152 4065	.081	8 43 56.11	203.87
.004	.003 8157	.004	5 59 52.97	205.15	.154	.153 3949	.081	8 47 19.96	203.84
0.005	0.004 8157	0.005	6 00 18.12	205.13	0.155	0.154 3811	0.881	8 50 43.79	203.81
.006	.005 8157	.006	6 03 43.23	205.11	.156	.155 3711	.080	8 54 07.50	203.78
.007	.006 8157	.007	6 09 08.34	205.09	.157	.156 3590	.079	8 57 31.35	203.75
.008	.007 8157	.008	6 10 33.42	205.07	.158	.157 3467	.079	9 00 55.68	203.72
.009	.008 8157	.009	6 13 58.48	205.05	.159	.158 3343	.077	9 04 18.78	203.68
0.010	0.009 7788	0.010	6 17 23.51	205.02	0.160	0.159 3217	0.873	9 07 42.43	203.65
.111	.110 7728	.011	6 20 48.52	205.00	.161	.160 3089	.072	9 11 06.09	203.62
.112	.111 7700	.012	6 24 13.51	204.98	.162	.161 2950	.070	9 14 29.69	203.59
.113	.112 7661	.013	6 27 38.48	204.95	.163	.162 2810	.069	9 17 53.21	203.55
.114	.113 7520	.014	6 31 03.42	204.93	.164	.163 2667	.067	9 21 16.80	203.52
0.115	0.114 7474	0.015	6 34 28.34	204.91	0.165	0.164 2514	0.855	9 24 40.31	203.49
.116	.115 7428	.016	6 37 53.21	204.88	.166	.165 2448	.065	9 28 03.78	203.46
.117	.116 7340	.017	6 41 18.11	204.86	.167	.166 2321	.064	9 31 27.22	203.42
.118	.117 7271	.018	6 44 43.06	204.84	.168	.167 2153	.061	9 34 50.62	203.39
.119	.118 7201	.019	6 48 07.78	204.81	.169	.168 2012	.060	9 38 13.99	203.35
0.120	0.119 7130	0.020	6 51 32.50	204.79	0.170	0.169 1870	0.850	9 41 37.33	203.32
.121	.120 7058	.021	6 54 57.30	204.76	.171	.170 1727	.059	9 45 00.03	203.29
.122	.121 6985	.022	6 58 22.11	204.74	.172	.171 1581	.058	9 48 23.00	203.25
.123	.122 6910	.023	7 01 46.81	204.71	.173	.172 1431	.057	9 51 45.14	203.22
.124	.123 6833	.024	7 05 11.54	204.69	.174	.173 1280	.055	9 55 10.33	203.18
0.125	0.124 6757	0.025	7 08 36.32	204.66	0.175	0.174 1136	0.849	9 58 33.50	203.15
.126	.125 6679	.026	7 12 00.87	204.64	.176	.175 0983	.054	10 01 56.63	203.11
.127	.126 6600	.027	7 15 25.40	204.61	.177	.176 0830	.053	10 05 19.72	203.08
.128	.127 6519	.028	7 18 50.09	204.59	.178	.177 0674	.051	10 08 42.78	203.04
.129	.128 6437	.029	7 22 14.67	204.56	.179	.178 0517	.050	10 12 05.80	203.00
0.130	0.129 6354	0.030	7 25 39.32	204.53	0.180	0.179 0358	0.839	10 15 28.78	202.97
.131	.130 6269	.031	7 29 03.74	204.51	.181	.180 0197	.049	10 18 51.73	202.93
.132	.131 6183	.032	7 32 28.23	204.48	.182	.181 0035	.047	10 22 14.65	202.90
.133	.132 6096	.033	7 35 52.70	204.45	.183	.181 0071	.045	10 25 37.54	202.86
.134	.133 6008	.034	7 39 17.14	204.43	.184	.182 0005	.043	10 29 00.36	202.82
0.135	0.134 5918	0.035	7 42 41.55	204.40	0.185	0.183 0037	0.831	10 32 23.17	202.78
.136	.135 5827	.036	7 46 05.93	204.37	.186	.184 0067	.042	10 35 45.03	202.75
.137	.136 5734	.037	7 49 30.21	204.34	.187	.185 0095	.040	10 39 06.66	202.71
.138	.137 5639	.038	7 52 54.42	204.32	.188	.186 0022	.038	10 42 28.15	202.67
.139	.138 5545	.039	7 56 18.91	204.29	.189	.187 0047	.037	10 45 54.91	202.63
0.140	0.139 5449	0.040	7 59 43.20	204.25	0.190	0.188 0070	0.822	10 49 16.62	202.60
.141	.140 5353	.041	8 03 07.45	204.23	.191	.189 0092	.040	10 52 38.20	202.56
.142	.141 5255	.042	8 06 31.60	204.20	.192	.190 0111	.039	10 56 01.74	202.52
.143	.142 5155	.043	8 09 55.85	204.17	.193	.191 0129	.037	10 59 24.84	202.48
.144	.143 5054	.044	8 13 20.01	204.14	.194	.192 0144	.035	11 02 48.71	202.44
0.145	0.144 4956	0.045	8 16 44.14	204.12	0.195	0.193 0158	0.813	11 06 09.13	202.40
.146	.145 4841	.046	8 20 08.24	204.09	.196	.194 0170	.034	11 09 31.51	202.37
.147	.146 4731	.047	8 23 32.31	204.06	.197	.195 0180	.032	11 12 53.80	202.33
.148	.147 4616	.048	8 26 56.35	204.03	.198	.196 0188	.030	11 16 16.17	202.29
.149	.148 4517	.049	8 30 20.39	204.00	.199	.197 0194	.028	11 19 38.43	202.25
0.150	0.149 4406	0.889	8 33 44.35	203.97	0.200	0.198 0198	0.803	11 23 00.66	202.21
u	$2 \tan^{-1} e^u - \frac{\pi}{2}$	$\operatorname{erf} u$	$2 \tan^{-1} e^u - \frac{\pi}{2}$	$\operatorname{erf} u$	u	$2 \tan^{-1} (e^u - \frac{\pi}{2})$	$\operatorname{erf} u$	$2 \tan^{-1} (e^u - \frac{\pi}{2})$	$\operatorname{erf} u$

The Gudermannian.

n	gd n	=F ₂ '	gd n	=F ₂ '	n	gd n	=F ₂ '	gd n	=F ₂ '
0.200	0.168 6968	0.000	11 21 00.46	202.21	0.200	0.247 4335	0.000	14 10 47.30	100.00
.201	.169 6661	0.001	11 20 23.85	202.47	.201	.248 4052	0.001	14 11 57.10	100.00
.202	.170 6360	0.002	11 19 47.90	202.73	.202	.249 3771	0.002	14 12 47.10	100.00
.203	.171 6060	0.003	11 19 07.10	202.99	.203	.250 3491	0.003	14 13 36.10	100.00
.204	.172 5760	0.004	11 18 26.47	203.25	.204	.251 3211	0.004	14 14 25.10	100.00
0.205	0.173 5460	0.004	11 18 51.30	203.51	0.205	0.252 2931	0.005	14 15 14.10	100.00
.206	.174 5160	0.005	11 18 13.10	203.76	.206	.253 2651	0.006	14 16 03.10	100.00
.207	.175 4860	0.006	11 17 35.10	204.02	.207	.254 2371	0.007	14 16 52.10	100.00
.208	.176 4560	0.007	11 16 57.02	204.28	.208	.255 2091	0.008	14 17 41.10	100.00
.209	.177 4260	0.008	11 16 18.30	204.54	.209	.256 1811	0.009	14 18 30.10	100.00
0.210	0.178 3960	0.008	11 15 40.21	204.80	0.210	0.257 1531	0.010	14 19 19.10	100.00
.211	.179 3660	0.009	11 15 02.48	205.06	.211	.258 1251	0.011	14 20 08.10	100.00
.212	.180 3360	0.010	11 14 25.22	205.32	.212	.259 971	0.012	14 20 57.10	100.00
.213	.181 3060	0.011	11 13 48.01	205.57	.213	.260 691	0.013	14 21 46.10	100.00
.214	.182 2760	0.012	11 13 07.30	205.83	.214	.261 411	0.014	14 22 35.10	100.00
0.215	0.183 2460	0.012	11 12 26.17	206.09	0.215	0.262 131	0.015	14 23 24.10	100.00
.216	.184 2160	0.013	11 11 50.24	206.35	.216	.263 851	0.016	14 24 13.10	100.00
.217	.185 1860	0.014	11 11 14.22	206.61	.217	.264 591	0.017	14 25 02.10	100.00
.218	.186 1560	0.015	11 10 38.21	206.87	.218	.265 331	0.018	14 25 51.10	100.00
.219	.187 1260	0.016	11 10 02.08	207.13	.219	.266 71	0.019	14 26 40.10	100.00
0.220	0.188 960	0.016	11 10 16.37	207.39	0.220	0.267 251	0.020	14 27 29.10	100.00
.221	.189 930	0.017	11 09 40.62	207.65	.221	.268 745	0.021	14 28 18.10	100.00
.222	.190 900	0.018	11 09 04.23	207.91	.222	.269 239	0.022	14 29 07.10	100.00
.223	.191 871	0.019	11 08 28.20	208.17	.223	.270 733	0.023	14 29 56.10	100.00
.224	.192 841	0.020	11 07 52.11	208.43	.224	.271 227	0.024	14 30 45.10	100.00
0.225	0.193 812	0.020	11 07 16.38	208.69	0.225	0.272 721	0.025	14 31 34.10	100.00
.226	.194 782	0.021	11 06 40.41	208.95	.226	.273 215	0.026	14 32 23.10	100.00
.227	.195 752	0.022	11 06 04.10	209.21	.227	.274 709	0.027	14 33 12.10	100.00
.228	.196 722	0.023	11 05 28.14	209.47	.228	.275 203	0.028	14 34 01.10	100.00
.229	.197 692	0.024	11 04 52.13	209.73	.229	.276 697	0.029	14 34 50.10	100.00
0.230	0.198 662	0.024	11 04 16.68	209.99	0.230	0.277 191	0.030	14 35 39.10	100.00
.231	.199 632	0.025	11 03 40.90	210.25	.231	.278 685	0.031	14 36 28.10	100.00
.232	.200 602	0.026	11 03 04.85	210.51	.232	.279 179	0.032	14 37 17.10	100.00
.233	.201 572	0.027	11 02 28.66	210.77	.233	.280 673	0.033	14 38 06.10	100.00
.234	.202 542	0.028	11 01 52.43	211.03	.234	.281 167	0.034	14 38 55.10	100.00
0.235	0.203 512	0.028	11 01 16.15	211.29	0.235	0.282 661	0.035	14 39 44.10	100.00
.236	.204 482	0.029	11 00 40.10	211.55	.236	.283 155	0.036	14 40 33.10	100.00
.237	.205 452	0.030	11 00 04.15	211.81	.237	.284 649	0.037	14 41 22.10	100.00
.238	.206 422	0.031	11 00 28.13	212.07	.238	.285 143	0.038	14 42 11.10	100.00
.239	.207 392	0.032	11 00 02.10	212.33	.239	.286 637	0.039	14 43 00.10	100.00
0.240	0.208 362	0.032	11 00 16.37	212.59	0.240	0.287 131	0.040	14 43 49.10	100.00
.241	.209 332	0.033	11 00 40.62	212.85	.241	.288 625	0.041	14 44 38.10	100.00
.242	.210 302	0.034	11 00 14.68	213.11	.242	.289 119	0.042	14 45 27.10	100.00
.243	.211 272	0.035	11 00 38.68	213.37	.243	.290 613	0.043	14 46 16.10	100.00
.244	.212 242	0.036	11 00 12.68	213.63	.244	.291 107	0.044	14 47 05.10	100.00
0.245	0.213 212	0.036	11 00 36.77	213.89	0.245	0.292 601	0.045	14 47 54.10	100.00
.246	.214 182	0.037	11 00 10.77	214.15	.246	.293 95	0.046	14 48 43.10	100.00
.247	.215 152	0.038	11 00 34.73	214.41	.247	.294 449	0.047	14 49 32.10	100.00
.248	.216 122	0.039	11 00 08.73	214.67	.248	.295 943	0.048	14 50 21.10	100.00
.249	.217 92	0.040	11 00 12.70	214.93	.249	.296 437	0.049	14 51 10.10	100.00
0.250	0.218 435	0.040	11 00 37.30	215.19	0.250	0.297 931	0.050	14 51 59.10	100.00
n	2 tan ⁻¹ (n) = $\frac{n^2}{2}$	— arch u	2 tan ⁻¹ (n) = 60°	— arch u	u	2 tan ⁻¹ (u) = $\frac{u^2}{2}$	— arch u	2 tan ⁻¹ (u) = 60°	— arch u

SMITHSONIAN TABLES

The Gudermannian.

u	gd u	wF ₂	gd u	wF ₂	u	gd u	wF ₂	gd u	wF ₂
0.300	0.295 3287	0566	00 50 11.60	007.32	0.380	0.343 0655	0417	00 29 22.31	004.25
.301	.296 3352	0563	00 50 28.69	007.25	.381	.344 0671	0418	00 29 35.63	004.18
.302	.297 3414	0561	00 50 46.13	007.20	.382	.344 0681	0419	00 29 50.20	004.11
.303	.298 3473	0558	00 50 03.30	007.15	.383	.345 0689	0420	00 29 01.28	004.05
.304	.299 3529	0555	00 50 20.12	007.09	.384	.346 0699	0421	00 29 16.80	003.98
0.305	0.300 3583	0552	00 50 37.48	007.03	0.385	0.347 7202	0422	00 29 32.75	003.92
.306	.301 3631	0549	00 50 54.48	006.97	.386	.348 7201	0423	00 29 48.63	003.85
.307	.302 3685	0547	00 50 11.42	006.91	.387	.349 7198	0424	00 29 00.45	003.78
.308	.303 3727	0544	00 50 28.30	006.85	.388	.350 7201	0425	00 29 14.20	003.72
.309	.304 3769	0541	00 50 45.12	006.79	.389	.351 7201	0426	00 29 27.88	003.65
0.310	0.305 3819	0538	00 50 01.89	006.73	0.390	0.352 7202	0427	00 29 41.50	003.58
.311	.306 3865	0535	00 50 18.60	006.68	.391	.353 7202	0428	00 29 55.05	003.52
.312	.307 3910	0532	00 50 35.21	006.62	.392	.354 7201	0429	00 29 08.51	003.45
.313	.308 3954	0529	00 50 51.83	006.56	.393	.355 7200	0430	00 29 21.95	003.38
.314	.309 3998	0526	00 50 08.30	006.50	.394	.356 7198	0431	00 29 35.30	003.32
0.315	0.309 4040	0523	00 50 24.83	006.44	0.395	0.357 7198	0432	00 29 48.59	003.25
.316	.310 4085	0521	00 50 41.23	006.38	.396	.358 7201	0433	00 29 01.89	003.18
.317	.311 4129	0518	00 50 57.58	006.32	.397	.359 7200	0434	00 29 14.95	003.11
.318	.312 4172	0515	00 50 13.89	006.26	.398	.360 7200	0435	00 29 27.01	003.05
.319	.313 4214	0512	00 50 30.10	006.20	.399	.360 7200	0436	00 29 41.01	002.98
0.320	0.314 4254	0509	00 50 46.25	006.14	0.399	0.361 7198	0437	00 29 53.68	002.91
.321	.315 4295	0506	00 50 02.32	006.08	.401	.362 7200	0438	00 29 06.85	002.84
.322	.316 4335	0503	00 50 18.31	006.01	.402	.363 7200	0439	00 29 19.60	002.77
.323	.317 4375	0500	00 50 34.30	005.95	.403	.364 7200	0440	00 29 32.40	002.70
.324	.318 4415	0497	00 50 50.32	005.89	.404	.365 7201	0441	00 29 45.07	002.63
0.325	0.319 4452	0494	00 50 06.19	005.83	0.395	0.366 7200	0436	00 29 57.67	002.57
.326	.320 4495	0491	00 50 21.99	005.77	.406	.367 7201	0437	00 30 10.20	002.50
.327	.321 4535	0488	00 50 37.72	005.71	.407	.368 7201	0438	00 30 22.60	002.43
.328	.322 4572	0485	00 50 53.40	005.65	.408	.369 7201	0439	00 30 35.05	002.36
.329	.323 4605	0482	00 50 09.02	005.58	.409	.370 7200	0440	00 30 47.38	002.29
0.330	0.324 4645	0479	00 50 24.57	005.52	0.396	0.371 7200	0441	00 30 59.63	002.22
.331	.325 4685	0476	00 50 40.08	005.46	.401	.372 7201	0442	00 31 11.82	002.15
.332	.326 4723	0473	00 50 55.49	005.40	.402	.373 7201	0443	00 31 23.93	002.08
.333	.327 4760	0470	00 51 10.85	005.33	.403	.374 7200	0444	00 31 35.97	002.01
.334	.328 4798	0467	00 50 26.10	005.27	.404	.374 7200	0445	00 31 47.95	001.94
0.335	0.328 4834	0464	00 50 41.40	005.21	0.395	0.375 7200	0446	00 31 59.85	001.87
.336	.329 4870	0461	00 50 56.52	005.15	.406	.376 7200	0447	00 32 11.68	001.80
.337	.330 4905	0458	00 51 11.60	005.08	.407	.377 7200	0448	00 32 23.45	001.73
.338	.331 4940	0455	00 50 26.71	005.02	.408	.378 7200	0449	00 32 35.14	001.66
.339	.332 4975	0452	00 50 41.72	004.95	.409	.379 7200	0450	00 32 46.70	001.59
0.340	0.333 4995	0449	00 50 56.65	004.89	0.396	0.380 7200	0451	00 32 58.31	001.51
.341	.334 5022	0445	00 51 11.50	004.83	.401	.381 7200	0452	00 33 09.79	001.44
.342	.335 5050	0442	00 51 26.30	004.76	.402	.382 7200	0453	00 33 21.15	001.37
.343	.336 4987	0439	00 51 41.03	004.70	.403	.383 7200	0454	00 33 32.41	001.30
.344	.337 4995	0436	00 51 55.70	004.63	.404	.384 7200	0455	00 33 43.80	001.23
0.345	0.338 5030	0433	00 52 10.30	004.57	0.395	0.385 7200	0456	00 33 54.99	001.16
.346	.339 5060	0430	00 52 24.83	004.51	.406	.386 7200	0457	00 34 05.91	001.09
.347	.340 5090	0427	00 52 39.31	004.44	.407	.387 7200	0458	00 34 16.70	001.01
.348	.341 5119	0424	00 52 53.72	004.38	.408	.388 7200	0459	00 34 27.34	000.94
.349	.342 5149	0420	00 53 08.06	004.31	.409	.389 7200	0460	00 34 37.80	000.87
0.350	0.343 5055	0417	00 53 22.31	004.25	0.400	0.390 7201	0461	00 34 48.08	000.80
u	2 tan ⁻¹ (u) - $\frac{\pi}{2}$	u	2 tan ⁻¹ (u) - $\frac{\pi}{2}$	u	2 tan ⁻¹ (u) - $\frac{\pi}{2}$	u	2 tan ⁻¹ (u) - $\frac{\pi}{2}$	u	2 tan ⁻¹ (u) - $\frac{\pi}{2}$

The Gudermannian.

u	gl u	+E'	gl u	+E'	u	gl u	+E'	gl u	+E'
0.399	0.399 7113	0.250	24 19 46.88	000.550	0.450	0.450 5.928	0.000	21 32 10.31	000.000
0.400	0.399 6660	0.247	24 21 00.51	000.723	0.451	0.450 4.153	0.001	21 33 55.37	000.001
0.402	0.399 5901	0.243	24 23 11.42	000.655	0.452	0.450 2.574	0.002	21 35 39.88	000.002
0.404	0.399 5130	0.240	24 25 21.91	000.588	0.453	0.450 1.095	0.003	21 37 23.00	000.003
0.406	0.399 4358	0.236	24 27 34.08	000.521	0.454	0.450 0.000	0.004	21 39 05.74	000.004
0.408	0.399 3585	0.232	24 29 42.05	000.453	0.455	0.450 0.000	0.007	21 40 48.01	000.007
0.410	0.399 2812	0.229	24 31 53.45	000.385	0.456	0.450 0.000	0.010	21 42 30.00	000.010
0.412	0.399 2039	0.225	24 34 03.69	000.317	0.457	0.450 0.000	0.013	21 44 11.76	000.013
0.414	0.399 1266	0.222	24 36 13.62	000.249	0.458	0.450 0.000	0.016	21 45 53.00	000.016
0.416	0.399 0493	0.218	24 38 21.00	000.181	0.459	0.450 0.000	0.019	21 47 33.76	000.019
0.418	0.398 9720	0.215	24 40 31.90	000.113	0.460	0.450 0.000	0.022	21 49 14.00	000.022
0.420	0.398 8947	0.211	24 42 41.51	000.045	0.461	0.450 0.000	0.025	21 50 53.76	000.025
0.422	0.398 8174	0.207	24 44 51.08	000.000	0.462	0.450 0.000	0.028	21 52 33.00	000.028
0.424	0.398 7401	0.203	24 47 01.00	000.000	0.463	0.450 0.000	0.031	21 54 11.76	000.031
0.426	0.398 6628	0.200	24 49 11.30	000.000	0.464	0.450 0.000	0.034	21 55 50.00	000.034
0.428	0.398 5855	0.196	24 51 21.00	000.000	0.465	0.450 0.000	0.037	21 57 28.76	000.037
0.430	0.398 5082	0.192	24 53 30.00	000.000	0.466	0.450 0.000	0.040	21 59 07.50	000.040
0.432	0.398 4309	0.188	24 55 39.00	000.000	0.467	0.450 0.000	0.043	22 00 46.26	000.043
0.434	0.398 3536	0.184	24 57 48.00	000.000	0.468	0.450 0.000	0.046	22 02 25.00	000.046
0.436	0.398 2763	0.180	24 59 57.00	000.000	0.469	0.450 0.000	0.049	22 04 03.76	000.049
0.438	0.398 1990	0.176	25 02 06.00	000.000	0.470	0.450 0.000	0.052	22 05 42.50	000.052
0.440	0.398 1217	0.172	25 04 15.00	000.000	0.471	0.450 0.000	0.055	22 07 21.26	000.055
0.442	0.398 0444	0.168	25 06 24.00	000.000	0.472	0.450 0.000	0.058	22 09 00.00	000.058
0.444	0.397 9671	0.164	25 08 33.00	000.000	0.473	0.450 0.000	0.061	22 10 38.76	000.061
0.446	0.397 8898	0.160	25 10 42.00	000.000	0.474	0.450 0.000	0.064	22 12 17.50	000.064
0.448	0.397 8125	0.156	25 12 51.00	000.000	0.475	0.450 0.000	0.067	22 13 56.26	000.067
0.450	0.397 7352	0.152	25 15 00.00	000.000	0.476	0.450 0.000	0.070	22 15 35.00	000.070
0.452	0.397 6579	0.148	25 17 09.00	000.000	0.477	0.450 0.000	0.073	22 17 13.76	000.073
0.454	0.397 5806	0.144	25 19 18.00	000.000	0.478	0.450 0.000	0.076	22 18 52.50	000.076
0.456	0.397 5033	0.140	25 21 27.00	000.000	0.479	0.450 0.000	0.079	22 20 31.26	000.079
0.458	0.397 4260	0.136	25 23 36.00	000.000	0.480	0.450 0.000	0.082	22 22 10.00	000.082
0.460	0.397 3487	0.132	25 25 45.00	000.000	0.481	0.450 0.000	0.085	22 23 48.76	000.085
0.462	0.397 2714	0.128	25 27 54.00	000.000	0.482	0.450 0.000	0.088	22 25 27.50	000.088
0.464	0.397 1941	0.124	25 30 03.00	000.000	0.483	0.450 0.000	0.091	22 27 06.26	000.091
0.466	0.397 1168	0.120	25 32 12.00	000.000	0.484	0.450 0.000	0.094	22 28 45.00	000.094
0.468	0.397 0395	0.116	25 34 21.00	000.000	0.485	0.450 0.000	0.097	22 30 23.76	000.097
0.470	0.396 9622	0.112	25 36 30.00	000.000	0.486	0.450 0.000	0.100	22 32 02.50	000.100
0.472	0.396 8849	0.108	25 38 39.00	000.000	0.487	0.450 0.000	0.103	22 33 41.26	000.103
0.474	0.396 8076	0.104	25 40 48.00	000.000	0.488	0.450 0.000	0.106	22 35 20.00	000.106
0.476	0.396 7303	0.100	25 42 57.00	000.000	0.489	0.450 0.000	0.109	22 36 58.76	000.109
0.478	0.396 6530	0.096	25 45 06.00	000.000	0.490	0.450 0.000	0.112	22 38 37.50	000.112
0.480	0.396 5757	0.092	25 47 15.00	000.000	0.491	0.450 0.000	0.115	22 40 16.26	000.115
0.482	0.396 4984	0.088	25 49 24.00	000.000	0.492	0.450 0.000	0.118	22 41 55.00	000.118
0.484	0.396 4211	0.084	25 51 33.00	000.000	0.493	0.450 0.000	0.121	22 43 33.76	000.121
0.486	0.396 3438	0.080	25 53 42.00	000.000	0.494	0.450 0.000	0.124	22 45 12.50	000.124
0.488	0.396 2665	0.076	25 55 51.00	000.000	0.495	0.450 0.000	0.127	22 46 51.26	000.127
0.490	0.396 1892	0.072	25 58 00.00	000.000	0.496	0.450 0.000	0.130	22 48 30.00	000.130
0.492	0.396 1119	0.068	25 60 09.00	000.000	0.497	0.450 0.000	0.133	22 50 08.76	000.133
0.494	0.396 0346	0.064	25 62 18.00	000.000	0.498	0.450 0.000	0.136	22 51 47.50	000.136
0.496	0.395 9573	0.060	25 64 27.00	000.000	0.499	0.450 0.000	0.139	22 53 26.26	000.139
0.498	0.395 8800	0.056	25 66 36.00	000.000	0.500	0.450 0.000	0.142	22 55 05.00	000.142
0.500	0.395 8027	0.052	25 68 45.00	000.000					
u	2 tan ⁻¹ (u) = $\frac{2}{\pi}$	u	2 tan ⁻¹ (u) = $\frac{2}{\pi}$	u	2 tan ⁻¹ (u) = $\frac{2}{\pi}$	u	2 tan ⁻¹ (u) = $\frac{2}{\pi}$	u	2 tan ⁻¹ (u) = $\frac{2}{\pi}$

The Gudermannian.

u	$gd\ u$	$\operatorname{sech} u$	$gd\ u$	$\operatorname{sech} u$	u	$gd\ u$	$\operatorname{sech} u$	$gd\ u$	$\operatorname{sech} u$
0.500	0.480 3811	8868	27 31 45.71	182.107	0.500	0.523 1996	8657	30 02 05.02	178.57
.501	.481 3977	8863	27 32 28.59	182.815	.551	.525 0951	8553	30 03 02.45	178.48
.502	.482 1539	8859	27 37 31.38	182.75	.552	.525 0302	8549	30 08 00.88	178.39
.503	.483 0307	8856	27 40 31.09	182.67	.553	.526 2948	8544	30 10 59.23	178.30
.504	.483 9451	8852	27 43 30.71	182.58	.554	.527 1090	8540	30 13 57.48	178.21
0.505	0.484 8100	8848	27 46 30.25	182.50	0.555	0.528 5238	8536	30 16 55.65	178.12
.506	.485 6910	8844	27 49 41.70	182.41	.556	.529 3851	8531	30 19 53.72	178.03
.507	.486 5787	8840	27 52 51.07	182.33	.557	.530 2390	8527	30 22 51.71	177.94
.508	.487 4723	8835	27 55 46.35	182.24	.558	.531 1115	8522	30 25 49.60	177.85
.509	.488 3428	8831	27 58 38.55	182.15	.559	.531 9735	8518	30 28 47.41	177.76
0.510	0.489 2287	8827	28 01 50.66	182.07	0.560	0.532 8151	8513	30 31 45.12	177.67
.511	.490 1112	8823	28 04 52.69	181.98	.561	.533 6362	8509	30 34 42.75	177.58
.512	.490 9903	8819	28 07 54.63	181.90	.562	.534 5399	8505	30 37 40.28	177.49
.513	.491 8749	8815	28 10 56.48	181.81	.563	.535 4172	8501	30 40 37.73	177.40
.514	.492 7564	8810	28 13 58.25	181.73	.564	.536 2771	8496	30 43 35.08	177.31
0.515	0.493 6379	8806	28 16 59.93	181.64	0.565	0.537 1305	8492	30 46 32.35	177.22
.516	.494 5174	8802	28 20 01.53	181.55	.566	.537 9651	8487	30 49 29.52	177.13
.517	.495 3974	8798	28 23 03.03	181.47	.567	.538 8530	8483	30 52 26.60	177.04
.518	.496 2790	8794	28 26 04.47	181.38	.568	.539 7130	8479	30 55 23.59	176.95
.519	.497 1591	8789	28 29 05.81	181.29	.569	.539 5560	8474	30 58 20.49	176.85
0.520	0.498 0398	8785	28 32 07.06	181.21	0.570	0.541 1268	8470	31 01 17.30	176.76
.521	.498 9131	8781	28 35 08.22	181.12	.571	.542 9865	8465	31 04 14.02	176.67
.522	.499 7900	8777	28 38 09.30	181.03	.572	.543 8309	8461	31 07 10.68	176.58
.523	.500 6685	8773	28 41 10.29	180.95	.573	.544 7598	8457	31 10 07.18	176.49
.524	.501 5451	8768	28 44 11.20	180.86	.574	.545 6512	8452	31 13 03.63	176.40
0.525	0.502 4221	8764	28 47 12.03	180.77	0.575	0.545 5062	8448	31 15 59.08	176.31
.526	.503 2981	8760	28 50 12.75	180.69	.576	.546 3967	8443	31 18 54.44	176.22
.527	.504 1742	8756	28 53 13.40	180.60	.577	.547 1138	8439	31 21 50.11	176.13
.528	.505 0505	8752	28 56 13.95	180.51	.578	.548 2885	8434	31 24 46.49	176.03
.529	.505 9245	8747	28 59 14.41	180.43	.579	.549 1217	8430	31 27 42.47	175.94
0.530	0.506 7990	8743	29 02 14.80	180.34	0.580	0.549 9754	8425	31 30 40.37	175.85
.531	.507 6731	8739	29 05 15.00	180.25	.581	.550 8607	8421	31 33 36.12	175.76
.532	.508 5465	8735	29 08 15.30	180.16	.582	.551 6796	8416	31 36 31.88	175.66
.533	.509 4200	8730	29 11 15.42	180.07	.583	.552 5300	8412	31 39 27.50	175.57
.534	.510 2935	8726	29 14 15.45	179.99	.584	.553 3810	8408	31 42 23.03	175.48
0.535	0.511 1652	8722	29 17 15.39	179.90	0.585	0.554 2315	8403	31 45 18.46	175.39
.536	.512 0372	8717	29 20 15.21	179.81	.586	.555 0810	8399	31 48 13.80	175.30
.537	.512 9087	8713	29 23 15.01	179.72	.587	.555 9313	8394	31 51 09.05	175.20
.538	.513 7798	8709	29 26 14.69	179.63	.588	.556 7811	8390	31 54 04.21	175.11
.539	.514 6505	8705	29 29 14.28	179.55	.589	.557 6302	8385	31 56 59.27	175.02
0.540	0.515 5207	8700	29 32 13.78	179.46	0.590	0.558 4775	8381	31 59 55.25	174.93
.541	.516 3905	8696	29 35 13.20	179.37	.591	.559 3453	8376	32 02 50.13	174.83
.542	.517 2599	8692	29 38 12.54	179.28	.592	.560 2127	8372	32 05 45.01	174.74
.543	.518 1291	8687	29 41 11.76	179.19	.593	.561 0900	8367	32 08 39.61	174.65
.544	.518 9974	8683	29 44 10.94	179.10	.594	.561 9661	8363	32 11 34.21	174.55
0.545	0.519 8655	8679	29 47 09.95	179.01	0.595	0.562 8422	8358	32 14 28.71	174.46
.546	.520 7327	8675	29 50 08.93	178.91	.596	.563 7172	8354	32 17 23.13	174.37
.547	.521 6003	8670	29 53 07.81	178.81	.597	.564 5939	8349	32 20 16.45	174.27
.548	.522 4673	8666	29 56 06.64	178.73	.598	.565 4709	8345	32 23 09.68	174.18
.549	.523 3339	8661	29 59 05.31	178.64	.599	.566 3488	8340	32 26 01.81	174.09
0.550	0.524 1996	8657	30 02 03.92	178.57	0.600	0.566 9395	8335	32 28 58.85	173.99
u	$2 \operatorname{tanh}^{-1}(\operatorname{sech} u) = \frac{e^u - e^{-u}}{e^u + e^{-u}}$	$\operatorname{sech} u$	$2 \operatorname{tanh}^{-1}(\operatorname{sech}^{-1} u) = \frac{e^u - e^{-u}}{e^u + e^{-u}}$	$\operatorname{sech} u$	u	$2 \operatorname{tanh}^{-1}(\operatorname{sech}^{-1} u) = \frac{e^u - e^{-u}}{e^u + e^{-u}}$	$\operatorname{sech} u$	$2 \operatorname{tanh}^{-1}(\operatorname{sech}^{-1} u) = \frac{e^u - e^{-u}}{e^u + e^{-u}}$	$\operatorname{sech} u$

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
0.000	0.000 0000	1.000 0000	0.000 0000	∞	0.690	0.636 5988	0.675 5903	0.937 2541	1.064 21
0.001	0.001 0000	0.999 9999	0.001 0000	1.000 0000	0.691	0.637 1800	0.675 0800	0.936 4000	1.064 41
0.002	0.002 0000	0.999 9996	0.002 0000	0.999 9996	0.692	0.637 7698	0.674 5698	0.935 5900	1.064 61
0.003	0.003 0000	0.999 9991	0.003 0000	0.999 9991	0.693	0.638 3596	0.674 0596	0.934 7800	1.064 81
0.004	0.004 0000	0.999 9986	0.004 0000	0.999 9986	0.694	0.638 9494	0.673 5494	0.933 9700	1.065 01
0.005	0.005 0000	0.999 9981	0.005 0000	0.999 9981	0.695	0.639 5392	0.673 0392	0.933 1600	1.065 21
0.006	0.006 0000	0.999 9976	0.006 0000	0.999 9976	0.696	0.640 1290	0.672 5290	0.932 3500	1.065 41
0.007	0.007 0000	0.999 9971	0.007 0000	0.999 9971	0.697	0.640 7188	0.672 0188	0.931 5400	1.065 61
0.008	0.008 0000	0.999 9966	0.008 0000	0.999 9966	0.698	0.641 3086	0.671 5086	0.930 7300	1.065 81
0.009	0.009 0000	0.999 9961	0.009 0000	0.999 9961	0.699	0.641 8984	0.670 9984	0.929 9200	1.066 01
0.010	0.010 0000	0.999 9956	0.010 0000	0.999 9956	0.700	0.642 4882	0.670 4882	0.929 1100	1.066 21
0.011	0.011 0000	0.999 9951	0.011 0000	0.999 9951	0.701	0.643 0780	0.669 9780	0.928 3000	1.066 41
0.012	0.012 0000	0.999 9946	0.012 0000	0.999 9946	0.702	0.643 6678	0.669 4678	0.927 4900	1.066 61
0.013	0.013 0000	0.999 9941	0.013 0000	0.999 9941	0.703	0.644 2576	0.668 9576	0.926 6800	1.066 81
0.014	0.014 0000	0.999 9936	0.014 0000	0.999 9936	0.704	0.644 8474	0.668 4474	0.925 8700	1.067 01
0.015	0.015 0000	0.999 9931	0.015 0000	0.999 9931	0.705	0.645 4372	0.667 9372	0.925 0600	1.067 21
0.016	0.016 0000	0.999 9926	0.016 0000	0.999 9926	0.706	0.646 0270	0.667 4270	0.924 2500	1.067 41
0.017	0.017 0000	0.999 9921	0.017 0000	0.999 9921	0.707	0.646 6168	0.666 9168	0.923 4400	1.067 61
0.018	0.018 0000	0.999 9916	0.018 0000	0.999 9916	0.708	0.647 2066	0.666 4066	0.922 6300	1.067 81
0.019	0.019 0000	0.999 9911	0.019 0000	0.999 9911	0.709	0.647 7964	0.665 8964	0.921 8200	1.068 01
0.020	0.020 0000	0.999 9906	0.020 0000	0.999 9906	0.710	0.648 3862	0.665 3862	0.921 0100	1.068 21
0.021	0.021 0000	0.999 9901	0.021 0000	0.999 9901	0.711	0.648 9760	0.664 8760	0.920 2000	1.068 41
0.022	0.022 0000	0.999 9896	0.022 0000	0.999 9896	0.712	0.649 5658	0.664 3658	0.919 3900	1.068 61
0.023	0.023 0000	0.999 9891	0.023 0000	0.999 9891	0.713	0.650 1556	0.663 8556	0.918 5800	1.068 81
0.024	0.024 0000	0.999 9886	0.024 0000	0.999 9886	0.714	0.650 7454	0.663 3454	0.917 7700	1.069 01
0.025	0.025 0000	0.999 9881	0.025 0000	0.999 9881	0.715	0.651 3352	0.662 8352	0.916 9600	1.069 21
0.026	0.026 0000	0.999 9876	0.026 0000	0.999 9876	0.716	0.651 9250	0.662 3250	0.916 1500	1.069 41
0.027	0.027 0000	0.999 9871	0.027 0000	0.999 9871	0.717	0.652 5148	0.661 8148	0.915 3400	1.069 61
0.028	0.028 0000	0.999 9866	0.028 0000	0.999 9866	0.718	0.653 1046	0.661 3046	0.914 5300	1.069 81
0.029	0.029 0000	0.999 9861	0.029 0000	0.999 9861	0.719	0.653 6944	0.660 7944	0.913 7200	1.070 01
0.030	0.030 0000	0.999 9856	0.030 0000	0.999 9856	0.720	0.654 2842	0.660 2842	0.912 9100	1.070 21
0.031	0.031 0000	0.999 9851	0.031 0000	0.999 9851	0.721	0.654 8740	0.659 7740	0.912 1000	1.070 41
0.032	0.032 0000	0.999 9846	0.032 0000	0.999 9846	0.722	0.655 4638	0.659 2638	0.911 2900	1.070 61
0.033	0.033 0000	0.999 9841	0.033 0000	0.999 9841	0.723	0.656 0536	0.658 7536	0.910 4800	1.070 81
0.034	0.034 0000	0.999 9836	0.034 0000	0.999 9836	0.724	0.656 6434	0.658 2434	0.909 6700	1.071 01
0.035	0.035 0000	0.999 9831	0.035 0000	0.999 9831	0.725	0.657 2332	0.657 7332	0.908 8600	1.071 21
0.036	0.036 0000	0.999 9826	0.036 0000	0.999 9826	0.726	0.657 8230	0.657 2230	0.908 0500	1.071 41
0.037	0.037 0000	0.999 9821	0.037 0000	0.999 9821	0.727	0.658 4128	0.656 7128	0.907 2400	1.071 61
0.038	0.038 0000	0.999 9816	0.038 0000	0.999 9816	0.728	0.659 0026	0.656 2026	0.906 4300	1.071 81
0.039	0.039 0000	0.999 9811	0.039 0000	0.999 9811	0.729	0.659 5924	0.655 6924	0.905 6200	1.072 01
0.040	0.040 0000	0.999 9806	0.040 0000	0.999 9806	0.730	0.660 1822	0.655 1822	0.904 8100	1.072 21
0.041	0.041 0000	0.999 9801	0.041 0000	0.999 9801	0.731	0.660 7720	0.654 6720	0.904 0000	1.072 41
0.042	0.042 0000	0.999 9796	0.042 0000	0.999 9796	0.732	0.661 3618	0.654 1618	0.903 1900	1.072 61
0.043	0.043 0000	0.999 9791	0.043 0000	0.999 9791	0.733	0.661 9516	0.653 6516	0.902 3800	1.072 81
0.044	0.044 0000	0.999 9786	0.044 0000	0.999 9786	0.734	0.662 5414	0.653 1414	0.901 5700	1.073 01
0.045	0.045 0000	0.999 9781	0.045 0000	0.999 9781	0.735	0.663 1312	0.652 6312	0.900 7600	1.073 21
0.046	0.046 0000	0.999 9776	0.046 0000	0.999 9776	0.736	0.663 7210	0.652 1210	0.899 9500	1.073 41
0.047	0.047 0000	0.999 9771	0.047 0000	0.999 9771	0.737	0.664 3108	0.651 6108	0.899 1400	1.073 61
0.048	0.048 0000	0.999 9766	0.048 0000	0.999 9766	0.738	0.664 9006	0.651 1006	0.898 3300	1.073 81
0.049	0.049 0000	0.999 9761	0.049 0000	0.999 9761	0.739	0.665 4904	0.650 5904	0.897 5200	1.074 01
0.050	0.050 0000	0.999 9756	0.050 0000	0.999 9756	0.740	0.666 0802	0.650 0802	0.896 7100	1.074 21

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
0.700	0.6148 0721	7000	37 11 00.10	161.33	0.730	0.688 2014	7242	39 25 51.72	150.30
.701	.6149 7085	7001	37 13 41.38	161.33	.731	.6883 0735	7249	39 28 30.08	150.22
.702	.6150 5015	7002	37 16 38.57	161.33	.732	.689 7451	7254	39 31 16.15	150.13
.703	.6151 3000	7003	37 19 42.06	161.33	.733	.690 5163	7260	39 33 49.21	150.01
.704	.6152 1559	7004	37 22 50.63	161.33	.734	.691 2870	7264	39 36 28.18	149.91
0.705	0.6153 0395	7005	37 25 54.52	161.34	0.735	0.692 0572	7269	39 39 07.04	149.81
.706	.6153 7336	7006	37 27 44.31	161.34	.736	.692 8299	7274	39 41 45.80	149.71
.707	.6154 5372	7007	37 30 49.92	161.34	.737	.693 6061	7280	39 44 24.46	149.61
.708	.6155 3393	7008	37 33 51.38	161.34	.738	.694 3868	7285	39 47 03.01	149.51
.709	.6156 1220	7009	37 35 45.06	161.34	.739	.695 1330	7290	39 49 41.47	149.40
0.710	0.6156 9930	7010	37 38 18.43	161.34	0.760	0.695 9007	7295	39 52 59.82	149.30
.711	.6157 7007	7011	37 41 01.71	161.34	.761	.696 6670	7300	39 54 58.07	149.20
.712	.6158 4098	7012	37 43 44.12	161.34	.762	.697 4317	7305	39 57 36.23	149.10
.713	.6159 1885	7013	37 46 28.61	161.34	.763	.698 1900	7310	39 59 41.28	149.00
.714	.6160 0787	7014	37 49 11.00	161.34	.764	.698 9507	7315	40 02 52.22	148.90
0.715	0.6160 8881	7015	37 51 51.80	161.34	0.765	0.699 7319	7320	40 05 30.07	148.80
.716	.6161 6376	7016	37 54 30.08	161.34	.766	.699 4907	7325	40 08 07.81	148.70
.717	.6162 4103	7017	37 57 30.40	161.34	.767	.701 2510	7330	40 10 45.46	148.60
.718	.6163 2146	7018	38 00 04.05	161.34	.768	.702 02 38	7335	40 13 23.00	148.50
.719	.6164 0223	7019	38 02 44.44	161.34	.769	.702 7880	7340	40 16 00.44	148.40
0.720	0.6164 8306	7020	38 05 26.13	161.34	0.770	0.703 5568	7345	40 18 37.98	148.30
.721	.6165 5604	7021	38 08 09.11	161.34	.771	.704 3131	7350	40 21 15.01	148.20
.722	.6166 3827	7022	38 10 51.39	161.34	.772	.705 0730	7355	40 23 52.33	148.10
.723	.6167 1685	7023	38 13 33.39	161.34	.773	.705 8363	7360	40 26 29.88	148.00
.724	.6167 9530	7024	38 16 15.37	161.34	.774	.706 5971	7365	40 29 06.11	147.90
0.725	0.6168 7387	7025	38 18 57.36	161.34	0.775	0.707 3574	7370	40 31 42.94	147.80
.726	.6169 5331	7026	38 21 39.05	161.34	.776	.708 1173	7375	40 34 19.07	147.70
.727	.6170 3079	7027	38 24 20.73	161.34	.777	.708 8756	7380	40 36 55.39	147.60
.728	.6171 0933	7028	38 27 02.32	161.34	.778	.709 6354	7385	40 39 32.82	147.50
.729	.6171 8734	7029	38 29 43.80	161.34	.779	.710 3938	7390	40 42 09.21	147.40
0.730	0.6172 6595	7030	38 32 25.19	161.33	0.780	0.711 1516	7395	40 44 45.56	147.30
.731	.6173 4376	7031	38 35 06.47	161.33	.781	.711 9090	7400	40 47 21.77	147.20
.732	.6174 2100	7032	38 37 47.05	161.33	.782	.712 6659	7405	40 49 57.80	147.10
.733	.6174 9800	7033	38 40 28.21	161.33	.783	.713 4223	7410	40 52 33.60	147.00
.734	.6175 7801	7034	38 43 09.72	161.33	.784	.714 1781	7415	40 55 09.81	146.90
0.735	0.6176 5904	7035	38 45 50.70	161.33	0.785	0.714 9335	7420	40 57 45.62	146.80
.736	.6177 3999	7036	38 48 31.38	161.33	.786	.715 6884	7425	41 00 21.33	146.70
.737	.6178 1880	7037	38 51 12.03	161.33	.787	.716 4428	7430	41 02 56.04	146.60
.738	.6178 9874	7038	38 53 52.41	161.33	.788	.717 1967	7435	41 05 30.44	146.50
.739	.6179 7954	7039	38 56 33.12	161.33	.789	.717 9501	7440	41 08 04.81	146.40
0.740	0.6180 6330	7040	38 59 13.39	161.33	0.790	0.718 7030	7445	41 10 43.74	146.30
.741	.6181 4300	7041	39 01 54.77	160.33	.791	.719 4554	7450	41 13 18.31	146.20
.742	.6182 2065	7042	39 04 35.95	160.33	.792	.720 2071	7455	41 15 53.43	146.10
.743	.6182 9826	7043	39 07 17.02	160.32	.793	.720 9588	7460	41 18 28.22	146.00
.744	.6183 7582	7044	39 09 58.00	159.92	.794	.721 7097	7465	41 21 03.31	145.90
0.745	0.6184 5331	7045	39 12 38.89	159.82	0.795	0.722 4601	7470	41 23 38.10	145.80
.746	.6185 3079	7046	39 15 19.61	159.72	.796	.723 2101	7475	41 26 12.78	145.70
.747	.6186 0826	7047	39 17 54.31	159.62	.797	.723 9595	7480	41 28 47.30	145.60
.748	.6186 8565	7048	39 20 32.84	159.52	.798	.724 7084	7485	41 31 21.81	145.50
.749	.6187 6287	7049	39 23 12.35	159.42	.799	.725 4569	7490	41 33 56.22	145.40
0.750	0.6188 2014	7242	39 25 51.72	159.32	0.800	0.726 2048	7497	41 36 30.80	145.30
u	$2 \sin^{-1} \sin \frac{u}{2}$	versu	$2 \sin^{-1} \cos \frac{u}{2}$	versu	u	$2 \sin^{-1} \sin \frac{u}{2}$	versu	$2 \sin^{-1} \cos \frac{u}{2}$	versu

The Gudermannian.

u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$	u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$
0.800	0.726 20.48	7177	41 36 36.50	154.23	0.890	0.762 9677	7228	43 42 53.38	140.00
.801	.726 652.3	7174	41 39 06.67	154.12	.891	.763 6909	7223	43 45 22.41	148.50
.802	.727 699.2	7169	41 41 38.74	154.02	.892	.764 4122	7218	43 47 51.34	148.88
.803	.728 4457	7162	41 44 12.71	153.92	.893	.765 1338	7213	43 50 20.17	148.78
.804	.729 1916	7157	41 46 46.57	153.81	.894	.765 8548	7208	43 52 48.89	148.67
0.805	0.729 0371	7152	41 49 20.34	153.71	0.895	0.765 5754	7203	43 55 17.52	148.57
.806	.730 6821	7147	41 51 54.00	153.61	.896	.767 2954	7198	43 57 46.04	148.47
.807	.731 4236	7142	41 54 27.91	153.51	.897	.768 0149	7193	44 00 14.45	148.36
.808	.732 1705	7137	41 57 01.61	153.40	.898	.768 7340	7188	44 02 42.76	148.26
.809	.732 9140	7132	41 59 34.36	153.30	.899	.769 4525	7183	44 05 10.67	148.16
0.810	0.733 6570	7127	42 02 07.61	153.20	0.900	0.770 1706	7178	44 07 38.08	148.06
.811	.734 3995	7122	42 04 40.75	153.10	.801	.770 8881	7173	44 10 07.08	147.95
.812	.735 1414	7117	42 07 13.81	153.00	.802	.771 6061	7168	44 12 34.68	147.85
.813	.735 8830	7112	42 09 46.75	152.89	.803	.772 3217	7163	44 15 02.78	147.75
.814	.736 6239	7107	42 12 19.50	152.79	.804	.773 0377	7158	44 17 30.48	147.64
0.815	0.737 3644	7102	42 14 52.33	152.69	0.805	0.773 7533	7153	44 19 58.07	147.54
.816	.738 1044	7097	42 17 24.96	152.58	.806	.774 4683	7148	44 22 25.50	147.44
.817	.738 8439	7092	42 19 57.50	152.48	.807	.775 1839	7143	44 24 52.61	147.33
.818	.739 5829	7087	42 22 29.93	152.38	.808	.775 8950	7138	44 27 19.22	147.23
.819	.740 3214	7082	42 25 02.25	152.28	.809	.776 6104	7133	44 29 47.40	147.13
0.820	0.741 0594	7077	42 27 34.48	152.17	0.870	0.777 3235	7128	44 32 14.48	147.02
.821	.741 7979	7072	42 30 06.66	152.07	.871	.778 0360	7123	44 34 41.45	146.92
.822	.742 5359	7067	42 32 38.68	151.97	.872	.778 7481	7118	44 37 08.32	146.82
.823	.743 2734	7062	42 35 10.53	151.87	.873	.779 4595	7113	44 39 35.09	146.71
.824	.744 0104	7057	42 37 42.34	151.76	.874	.780 1707	7108	44 42 01.75	146.60
0.825	0.744 7430	7052	42 40 14.05	151.66	0.875	0.780 8812	7103	44 44 28.31	146.51
.826	.745 4770	7047	42 42 45.66	151.55	.876	.781 5912	7098	44 46 54.77	146.41
.827	.746 2115	7042	42 45 17.17	151.45	.877	.782 3008	7093	44 49 21.12	146.30
.828	.746 9455	7037	42 47 48.57	151.35	.878	.783 0098	7088	44 51 47.37	146.20
.829	.747 6790	7032	42 50 19.87	151.25	.879	.783 7184	7083	44 54 13.52	146.10
0.830	0.748 4120	7027	42 52 51.05	151.14	0.880	0.784 4264	7078	44 56 39.56	146.00
.831	.749 1449	7022	42 55 22.16	151.04	.881	.785 1340	7073	44 59 05.50	145.89
.832	.749 8766	7017	42 57 53.15	150.94	.882	.785 8410	7068	45 01 31.34	145.79
.833	.750 6081	7012	43 00 24.04	150.84	.883	.786 5476	7063	45 03 57.08	145.68
.834	.751 3391	7007	43 02 54.82	150.73	.884	.787 2536	7058	45 06 22.71	145.58
0.835	0.752 0697	7002	43 05 25.50	150.63	0.885	0.787 9591	7053	45 08 48.24	145.48
.836	.752 8007	7000	43 07 56.08	150.53	.886	.788 6642	7048	45 11 13.66	145.37
.837	.753 5319	7003	43 10 26.95	150.42	.887	.789 3687	7043	45 13 38.99	145.27
.838	.754 2628	7008	43 12 58.03	150.32	.888	.790 0728	7038	45 16 03.21	145.17
.839	.754 9938	7003	43 15 29.20	150.22	.889	.790 7763	7033	45 18 29.33	145.05
0.840	0.755 7248	7008	43 17 59.37	150.12	0.890	0.791 4794	7028	45 20 54.34	144.95
.841	.756 4543	7003	43 20 29.43	150.01	.891	.792 1819	7023	45 23 19.25	144.84
.842	.757 1834	7008	43 22 59.39	149.91	.892	.792 8830	7018	45 25 44.05	144.75
.843	.757 9120	7003	43 25 29.25	149.81	.893	.793 5835	7013	45 28 08.76	144.65
.844	.758 6419	7008	43 27 59.01	149.70	.894	.794 2838	7008	45 30 33.36	144.55
0.845	0.759 3715	7003	43 30 28.66	149.60	0.895	0.794 9871	7003	45 32 57.85	144.45
.846	.760 1025	7008	43 32 58.21	149.50	.896	.795 6871	7008	45 35 22.25	144.34
.847	.760 8320	7003	43 35 27.65	149.39	.897	.796 3857	7003	45 37 46.54	144.24
.848	.761 5611	7008	43 37 57.05	149.29	.898	.797 0857	7008	45 40 10.73	144.14
.849	.762 2906	7003	43 40 26.24	149.19	.899	.797 7843	7003	45 42 34.81	144.04
0.850	0.762 9677	7008	43 42 55.38	149.09	0.900	0.798 4823	7008	45 44 58.80	143.94
u	$2 \tan^{-1}(\operatorname{sech} u) = \frac{\pi}{2}$	$\operatorname{sech} u$	$2 \tan^{-1}(\operatorname{gd} u) = \frac{\pi}{2}$	$\operatorname{sech} u$	u	$2 \tan^{-1}(\operatorname{sech} u) = \frac{\pi}{2}$	$\operatorname{sech} u$	$2 \tan^{-1}(\operatorname{gd} u) = \frac{\pi}{2}$	$\operatorname{sech} u$

The Gudermannian.

u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$	u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$
0.000	0.708 4824	0.999	45 44 58.80	1.000	0.832 7479	0.728	47 42 46.58	1.38.78	
0.01	709 1298	0.998	45 47 52.07	1.000	833 4805	0.723	47 45 08.31	1.38.68	
0.02	709 8299	0.996	45 49 46.45	1.000	834 0296	0.719	47 47 21.03	1.38.58	
0.03	710 5731	0.994	45 53 16.12	1.000	834 7952	0.714	47 49 42.47	1.38.48	
0.04	711 3533	0.991	45 54 23.69	1.000	835 4353	0.709	47 52 00.89	1.38.37	
0.05	712 1690	0.988	45 56 57.46	1.000	836 1090	0.704	47 54 16.22	1.38.27	
0.06	713 1664	0.985	45 59 30.52	1.000	836 7766	0.699	47 56 37.44	1.38.17	
0.07	713 35 86	0.981	46 01 43.78	1.000	837 4491	0.694	47 58 55.85	1.38.07	
0.08	713 10187	0.978	46 04 06.04	1.000	838 1147	0.689	48 01 13.57	1.37.96	
0.09	713 7424	0.974	46 06 30.03	1.000	838 7833	0.684	48 03 31.48	1.37.86	
0.10	714 4353	0.970	46 08 52.95	1.000	839 4514	0.679	48 05 49.29	1.37.76	
0.11	715 1278	0.966	46 11 15.79	1.000	840 1191	0.674	48 08 07.03	1.37.65	
0.12	715 8108	0.962	46 13 38.54	1.000	840 7832	0.669	48 10 24.69	1.37.55	
0.13	716 5114	0.958	46 16 01.18	1.000	841 4528	0.664	48 12 42.10	1.37.45	
0.14	717 2024	0.954	46 18 23.72	1.000	842 1190	0.659	48 15 59.50	1.37.35	
0.15	717 89 39	0.950	46 20 46.46	1.000	842 7846	0.654	48 18 16.80	1.37.25	
0.16	718 5830	0.946	46 23 08.49	1.000	843 4497	0.649	48 20 38.63	1.37.14	
0.17	719 2740	0.942	46 25 30.72	1.000	844 1141	0.644	48 23 51.69	1.37.04	
0.18	719 10016	0.938	46 27 52.85	1.000	844 7785	0.639	48 26 08.68	1.36.94	
0.19	720 6992	0.934	46 30 14.87	1.000	845 4422	0.634	48 28 24.66	1.36.84	
0.20	721 3884	0.930	46 32 36.79	1.000	846 1053	0.629	48 30 41.75	1.36.73	
0.21	722 1058	0.926	46 34 58.64	1.000	846 7685	0.624	48 32 58.63	1.36.63	
0.22	722 7129	0.922	46 37 20.33	1.000	847 4301	0.619	48 35 15.04	1.36.53	
0.23	723 36 71	0.918	46 39 41.91	1.000	848 0918	0.614	48 37 31.43	1.36.43	
0.24	724 10585	0.914	46 42 03.15	1.000	848 7530	0.609	48 39 47.87	1.36.32	
0.25	724 815 7710	0.910	46 44 24.85	1.000	849 4136	0.604	48 42 04.14	1.36.22	
0.26	725 4861	0.906	46 46 46.10	1.000	849 1078	0.599	48 44 20.31	1.36.12	
0.27	726 1490	0.902	46 49 07.39	1.000	849 7535	0.594	48 46 36.38	1.36.02	
0.28	727 8247	0.898	46 51 28.15	1.000	850 4307	0.589	48 48 52.31	1.35.92	
0.29	728 3083	0.894	46 53 49.45	1.000	851 0914	0.584	48 51 08.25	1.35.81	
0.30	729 1013	0.890	46 56 10.34	1.000	851 7466	0.579	48 53 23.07	1.35.71	
0.31	729 8099	0.886	46 58 31.13	1.000	852 4073	0.574	48 55 38.00	1.35.61	
0.32	730 5090	0.882	47 00 51.81	1.000	853 0635	0.569	48 57 53.00	1.35.51	
0.33	731 2125	0.878	47 03 12.90	1.000	853 7251	0.564	48 60 08.04	1.35.40	
0.34	731 9186	0.874	47 05 33.88	1.000	854 3821	0.559	48 62 23.00	1.35.30	
0.35	732 6302	0.870	47 07 53.25	1.000	855 0351	0.554	48 64 38.00	1.35.20	
0.36	733 3462	0.866	47 10 12.54	1.000	855 6933	0.549	48 66 53.00	1.35.10	
0.37	734 0688	0.862	47 12 32.39	1.000	856 3479	0.544	48 69 08.00	1.35.00	
0.38	734 7970	0.858	47 14 53.77	1.000	856 9971	0.539	48 71 23.00	1.34.90	
0.39	735 5304	0.854	47 17 13.71	1.000	857 6420	0.534	48 73 38.00	1.34.80	
0.40	736 2691	0.850	47 19 33.60	1.000	858 2824	0.529	48 75 53.00	1.34.69	
0.41	737 0132	0.846	47 21 53.30	1.000	858 9170	0.524	48 78 08.00	1.34.59	
0.42	737 7632	0.842	47 24 13.02	1.000	859 5462	0.519	48 80 23.00	1.34.48	
0.43	738 5187	0.838	47 26 32.67	1.000	860 1700	0.514	48 82 38.00	1.34.38	
0.44	739 2808	0.834	47 28 52.02	1.000	860 7893	0.509	48 84 53.00	1.34.28	
0.45	740 0484	0.830	47 31 11.37	1.000	861 4040	0.504	48 87 08.00	1.34.18	
0.46	740 8215	0.826	47 33 30.60	1.000	862 0143	0.499	48 89 23.00	1.34.08	
0.47	741 5991	0.822	47 35 49.76	1.000	862 6201	0.494	48 91 38.00	1.33.98	
0.48	742 3812	0.818	47 38 08.80	1.000	863 2210	0.489	48 93 53.00	1.33.88	
0.49	743 1678	0.814	47 40 27.73	1.000	863 8172	0.484	48 96 08.00	1.33.77	
0.50	743 9599	0.810	47 42 46.58	1.000	864 4095	0.479	48 98 23.00	1.33.67	
u	$2 \operatorname{ar}^{-1}(\operatorname{sech} u)$	$\operatorname{sech} u$	$2 \operatorname{ar}^{-1}(\operatorname{sech} u)$	$\operatorname{sech} u$	u	$2 \operatorname{ar}^{-1}(\operatorname{sech} u)$	$\operatorname{sech} u$	$2 \operatorname{ar}^{-1}(\operatorname{sech} u)$	$\operatorname{sech} u$

The Code maintains:

n	g1 n	o12	g4 n	o12	n	g4 n	o12	g4 n	o12
1.000	0.835 7905	6.616	39.26 17.79	1.03.55	1.000	0.839 8379	6.616	39.25 14.55	1.03.60
0.001	39.26 17.79	6.616	39.26 17.79	1.03.55	0.001	39.26 17.79	6.616	39.25 14.55	1.03.60
0.002	39.26 17.79	6.616	39.26 17.79	1.03.55	0.002	39.26 17.79	6.616	39.25 14.55	1.03.60
0.003	39.26 17.79	6.616	39.26 17.79	1.03.55	0.003	39.26 17.79	6.616	39.25 14.55	1.03.60
0.004	39.26 17.79	6.616	39.26 17.79	1.03.55	0.004	39.26 17.79	6.616	39.25 14.55	1.03.60
1.005	0.839 8379	6.616	39.25 14.55	1.03.60	1.005	0.839 8379	6.616	39.25 14.55	1.03.60
0.006	39.25 14.55	6.616	39.25 14.55	1.03.60	0.006	39.25 14.55	6.616	39.25 14.55	1.03.60
0.007	39.25 14.55	6.616	39.25 14.55	1.03.60	0.007	39.25 14.55	6.616	39.25 14.55	1.03.60
0.008	39.25 14.55	6.616	39.25 14.55	1.03.60	0.008	39.25 14.55	6.616	39.25 14.55	1.03.60
0.009	39.25 14.55	6.616	39.25 14.55	1.03.60	0.009	39.25 14.55	6.616	39.25 14.55	1.03.60
1.010	0.842 1254	6.616	39.26 17.79	1.03.55	1.010	0.842 1254	6.616	39.26 17.79	1.03.55
0.011	39.26 17.79	6.616	39.26 17.79	1.03.55	0.011	39.26 17.79	6.616	39.26 17.79	1.03.55
0.012	39.26 17.79	6.616	39.26 17.79	1.03.55	0.012	39.26 17.79	6.616	39.26 17.79	1.03.55
0.013	39.26 17.79	6.616	39.26 17.79	1.03.55	0.013	39.26 17.79	6.616	39.26 17.79	1.03.55
0.014	39.26 17.79	6.616	39.26 17.79	1.03.55	0.014	39.26 17.79	6.616	39.26 17.79	1.03.55
1.015	0.845 1848	6.616	39.26 17.79	1.03.55	1.015	0.845 1848	6.616	39.26 17.79	1.03.55
0.016	39.26 17.79	6.616	39.26 17.79	1.03.55	0.016	39.26 17.79	6.616	39.26 17.79	1.03.55
0.017	39.26 17.79	6.616	39.26 17.79	1.03.55	0.017	39.26 17.79	6.616	39.26 17.79	1.03.55
0.018	39.26 17.79	6.616	39.26 17.79	1.03.55	0.018	39.26 17.79	6.616	39.26 17.79	1.03.55
0.019	39.26 17.79	6.616	39.26 17.79	1.03.55	0.019	39.26 17.79	6.616	39.26 17.79	1.03.55
1.020	0.848 2681	6.616	39.26 17.79	1.03.55	1.020	0.848 2681	6.616	39.26 17.79	1.03.55
0.021	39.26 17.79	6.616	39.26 17.79	1.03.55	0.021	39.26 17.79	6.616	39.26 17.79	1.03.55
0.022	39.26 17.79	6.616	39.26 17.79	1.03.55	0.022	39.26 17.79	6.616	39.26 17.79	1.03.55
0.023	39.26 17.79	6.616	39.26 17.79	1.03.55	0.023	39.26 17.79	6.616	39.26 17.79	1.03.55
0.024	39.26 17.79	6.616	39.26 17.79	1.03.55	0.024	39.26 17.79	6.616	39.26 17.79	1.03.55
1.025	0.851 3819	6.616	39.26 17.79	1.03.55	1.025	0.851 3819	6.616	39.26 17.79	1.03.55
0.026	39.26 17.79	6.616	39.26 17.79	1.03.55	0.026	39.26 17.79	6.616	39.26 17.79	1.03.55
0.027	39.26 17.79	6.616	39.26 17.79	1.03.55	0.027	39.26 17.79	6.616	39.26 17.79	1.03.55
0.028	39.26 17.79	6.616	39.26 17.79	1.03.55	0.028	39.26 17.79	6.616	39.26 17.79	1.03.55
0.029	39.26 17.79	6.616	39.26 17.79	1.03.55	0.029	39.26 17.79	6.616	39.26 17.79	1.03.

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
1.100	0.928 1274	5993	53 10 40.00	123.62	1.150	0.937 4080	5796	54 51 38.15	118.72
1.101	0.928 7405	5989	53 12 43.50	123.52	1.151	0.938 0734	5781	54 53 36.82	118.62
1.102	0.929 3251	5984	53 14 47.00	123.43	1.152	0.938 6382	5766	54 55 35.50	118.53
1.103	0.929 9232	5979	53 16 50.43	123.32	1.153	0.939 2226	5751	54 57 33.87	118.43
1.104	0.930 5200	5974	53 18 53.71	123.23	1.154	0.939 7665	5737	54 59 32.25	118.33
1.105	0.931 1181	5970	53 20 56.81	123.13	1.155	0.940 3700	5722	55 01 30.53	118.23
1.106	0.931 7148	5966	53 22 59.90	123.03	1.156	0.940 9439	5707	55 03 28.72	118.14
1.107	0.932 3110	5960	53 25 03.04	122.93	1.157	0.941 5155	5693	55 05 26.84	118.04
1.108	0.932 9057	5955	53 27 05.82	122.83	1.158	0.942 0855	5678	55 07 24.86	117.94
1.109	0.933 5000	5950	53 29 08.00	122.73	1.159	0.942 6591	5673	55 09 22.69	117.85
1.110	0.934 0938	5945	53 31 11.29	122.63	1.160	0.943 2302	5659	55 11 20.49	117.75
1.111	0.934 6911	5941	53 33 14.87	122.54	1.161	0.943 8008	5653	55 13 18.19	117.65
1.112	0.935 2890	5936	53 35 18.30	122.44	1.162	0.944 3710	5639	55 15 15.80	117.56
1.113	0.935 8882	5931	53 37 21.78	122.34	1.163	0.944 9407	5633	55 17 13.31	117.46
1.114	0.936 4711	5926	53 39 25.03	122.24	1.164	0.945 5099	5619	55 19 10.72	117.36
1.115	0.937 0635	5922	53 41 28.22	122.14	1.165	0.946 0787	5615	55 21 08.04	117.27
1.116	0.937 6554	5917	53 43 31.32	122.04	1.166	0.946 6470	5611	55 23 05.29	117.17
1.117	0.938 2469	5912	53 45 34.31	121.94	1.167	0.947 2148	5607	55 25 02.38	117.07
1.118	0.938 8378	5907	53 47 37.21	121.85	1.168	0.947 7822	5603	55 26 59.41	116.98
1.119	0.939 4283	5902	53 49 40.00	121.75	1.169	0.948 3494	5607	55 28 56.34	116.88
1.120	0.940 0183	5898	53 51 42.70	121.65	1.170	0.948 9155	5602	55 30 53.17	116.79
1.121	0.940 6070	5893	53 53 45.30	121.55	1.171	0.949 4815	5603	55 32 49.91	116.69
1.122	0.941 1950	5888	53 55 47.80	121.45	1.172	0.950 0470	5603	55 34 46.55	116.59
1.123	0.941 7855	5883	53 57 50.21	121.35	1.173	0.950 6120	5618	55 36 43.10	116.50
1.124	0.942 3736	5879	53 59 52.51	121.26	1.174	0.951 1765	5613	55 38 39.54	116.40
1.125	0.942 9613	5874	54 01 54.72	121.16	1.175	0.951 7407	5610	55 40 35.09	116.31
1.126	0.943 5484	5870	54 03 56.83	121.06	1.176	0.952 3047	5614	55 42 32.16	116.21
1.127	0.944 1351	5866	54 05 58.84	120.96	1.177	0.952 8685	5619	55 44 28.32	116.11
1.128	0.944 7213	5860	54 07 59.76	120.86	1.178	0.953 4321	5625	55 46 24.38	116.02
1.129	0.945 3070	5855	54 09 59.57	120.77	1.179	0.953 9954	5620	55 48 20.35	115.92
1.130	0.945 8923	5850	54 11 59.29	120.67	1.180	0.954 5584	5615	55 50 16.28	115.83
1.131	0.946 4771	5845	54 13 58.91	120.57	1.181	0.955 1215	5611	55 52 12.00	115.73
1.132	0.947 0614	5841	54 15 58.43	120.47	1.182	0.955 6843	5606	55 54 07.68	115.63
1.133	0.947 6452	5836	54 17 57.85	120.36	1.183	0.956 2472	5601	55 56 03.47	115.54
1.134	0.948 2286	5831	54 19 56.18	120.26	1.184	0.956 8100	5597	55 57 58.70	115.44
1.135	0.948 8115	5826	54 21 54.41	120.16	1.185	0.957 3726	5592	55 59 54.15	115.35
1.136	0.949 3939	5822	54 23 52.51	120.06	1.186	0.957 9350	5588	56 01 49.45	115.25
1.137	0.949 9758	5817	54 25 50.58	119.96	1.187	0.958 4973	5584	56 03 44.60	115.15
1.138	0.950 5573	5812	54 27 48.51	119.86	1.188	0.959 0596	5578	56 05 39.70	115.06
1.139	0.951 1383	5807	54 29 46.35	119.76	1.189	0.959 6218	5574	56 07 34.76	114.96
1.140	0.951 7188	5803	54 31 44.09	119.66	1.190	0.960 1839	5570	56 09 29.69	114.87
1.141	0.952 2984	5798	54 33 41.74	119.56	1.191	0.960 7459	5566	56 11 24.51	114.77
1.142	0.952 8781	5793	54 35 39.30	119.46	1.192	0.961 3078	5560	56 13 19.21	114.68
1.143	0.953 4578	5789	54 37 36.73	119.36	1.193	0.961 8696	5555	56 15 13.87	114.58
1.144	0.954 0361	5784	54 39 34.08	119.26	1.194	0.962 4312	5551	56 17 08.41	114.49
1.145	0.954 6143	5779	54 41 31.31	119.16	1.195	0.962 9925	5546	56 19 02.85	114.39
1.146	0.955 1920	5775	54 43 28.49	119.11	1.196	0.963 5534	5541	56 20 57.19	114.30
1.147	0.955 7692	5770	54 45 25.55	119.01	1.197	0.964 1141	5537	56 22 51.41	114.20
1.148	0.956 3460	5765	54 47 22.51	118.91	1.198	0.964 6745	5532	56 24 45.60	114.11
1.149	0.956 9222	5760	54 49 19.38	118.82	1.199	0.965 2347	5527	56 26 39.66	114.01
1.150	0.957 4980	5756	54 51 16.15	118.72	1.200	0.965 7942	5523	56 28 33.62	113.92
u	$2 \tan^{-1}(\sec u) - \frac{\pi}{2}$	$\sec u$	$2 \tan^{-1}(\sec u) - \frac{\pi}{2}$	$\sec u$	u	$2 \tan^{-1}(\sec u) - \frac{\pi}{2}$	$\sec u$	$2 \tan^{-1}(\sec u) - \frac{\pi}{2}$	$\sec u$

The Gudermasian.

n	gdn	gdn	gdn	n	gdn	gdn	gdn	gdn
1,300	0,685 6022	5531	55 38 31.62	1,350	1,012 7136	5205	55 01 35.72	105,13
1,301	0,686 2414	5518	55 39 29.49	1,351	0,013 3999	5203	55 03 36.59	105,13
1,302	0,687 7019	5514	55 40 21.20	1,352	0,013 7938	5201	55 05 38.48	105,14
1,303	0,687 3420	5501	55 41 14.04	1,353	0,014 3222	5200	55 06 35.45	105,15
1,304	0,687 8077	5501	55 40 08.53	1,354	0,014 8502	5202	55 08 37.28	105,15
1,305	0,688 4420	5490	55 38 02.02	1,355	1,015 3777	5203	55 10 39.69	105,16
1,306	0,688 9077	5483	55 39 55.42	1,356	0,015 9068	5204	55 11 37.49	105,16
1,307	0,689 5120	5491	55 41 48.74	1,357	0,016 4114	5204	55 13 41.03	105,18
1,308	0,690 0958	5485	55 43 41.06	1,358	0,016 9579	5204	55 16 07.26	105,19
1,309	0,690 6142	5482	55 45 35.03	1,359	0,017 4843	5205	55 17 34.00	105,19
1,310	0,691 1621	5477	55 47 28.05	1,360	1,016 0030	5205	55 19 39.35	105,20
1,311	0,691 7290	5472	55 49 20.07	1,361	0,018 5145	5204	55 21 42.10	105,21
1,312	0,692 2860	5478	55 51 14.38	1,362	0,019 0528	5204	55 23 45.77	105,22
1,313	0,692 8331	5464	55 53 06.51	1,363	0,019 5803	5207	55 26 01.81	105,23
1,314	0,693 4792	5459	55 54 59.17	1,364	0,020 1053	5203	55 28 31.81	105,24
1,315	0,693 9129	5454	55 56 51.72	1,365	1,020 6483	5208	55 30 39.71	105,24
1,316	0,694 4700	5447	55 58 43.17	1,366	0,021 1510	5209	55 32 37.59	105,25
1,317	0,695 0188	5445	55 60 36.53	1,367	0,021 6731	5209	55 34 41.71	105,26
1,318	0,695 5560	5440	55 62 28.79	1,368	0,022 1988	5215	55 36 09.25	105,27
1,319	0,696 1028	5435	55 64 20.06	1,369	0,022 7101	5200	55 38 39.14	105,27
1,320	0,696 6462	5431	55 66 13.03	1,370	1,023 2499	5205	55 40 47.77	105,28
1,321	0,697 1891	5427	55 68 05.00	1,371	0,023 7571	5204	55 42 37.59	105,29
1,322	0,697 7315	5422	55 69 56.00	1,372	0,024 2772	5207	55 44 41.30	105,30
1,323	0,698 2745	5418	55 71 48.09	1,373	0,024 7949	5203	55 46 59.50	105,31
1,324	0,698 8139	5413	55 73 40.39	1,374	0,025 3135	5205	55 48 49.59	105,32
1,325	0,699 3516	5408	55 75 31.99	1,375	1,025 8444	5204	55 50 44.54	105,32
1,326	0,699 8897	5404	55 77 23.50	1,376	0,026 3579	5209	55 52 39.41	105,33
1,327	1,000 4309	5399	55 79 15.02	1,377	0,026 8704	5205	55 54 07.29	105,34
1,328	0,000 9766	5395	55 81 06.11	1,378	0,027 3846	5204	55 56 34.50	105,35
1,329	0,001 5158	5390	55 82 57.37	1,379	0,027 8944	5206	55 58 31.99	105,36
1,330	1,003 0546	5386	55 84 48.60	1,380	1,028 4245	5202	55 59 29.01	105,37
1,331	0,002 5939	5381	55 86 39.34	1,381	0,028 9367	5202	55 59 15.11	105,38
1,332	0,003 1303	5377	55 88 30.59	1,382	0,029 4521	5203	55 59 59.77	105,39
1,333	0,003 6641	5372	55 89 21.45	1,383	0,029 9671	5205	56 00 34.00	105,40
1,334	0,004 1953	5368	55 91 12.21	1,384	0,030 4809	5211	56 02 31.09	105,40
1,335	1,004 7118	5363	55 93 03.88	1,385	1,030 9966	5209	56 04 48.24	105,41
1,336	0,005 2779	5359	55 95 53.45	1,386	0,031 5093	5205	56 06 46.09	105,42
1,337	0,005 8015	5354	55 97 43.03	1,387	0,032 0252	5204	56 07 59.05	105,43
1,338	0,006 3167	5349	55 99 32.32	1,388	0,032 5390	5209	56 09 45.38	105,44
1,339	0,006 8834	5345	55 10 21.01	1,389	0,033 0495	5202	56 11 27.54	105,45
1,340	1,007 4127	5340	55 12 11.32	1,390	1,033 5645	5203	56 13 07.43	105,46
1,341	0,007 9515	5336	55 14 01.02	1,391	0,034 0730	5203	56 14 54.66	105,47
1,342	0,008 4840	5331	55 15 51.04	1,392	0,034 5818	5209	56 16 41.65	105,48
1,343	0,009 0178	5327	55 17 41.29	1,393	0,035 0868	5204	56 18 24.41	105,49
1,344	0,009 5593	5322	55 19 31.69	1,394	0,035 5909	5200	56 20 08.06	105,50
1,345	1,010 0843	5318	55 21 21.43	1,395	1,036 1038	5206	56 21 54.81	105,51
1,346	0,010 6149	5313	55 23 11.07	1,396	0,036 6141	5209	56 23 38.27	105,52
1,347	0,011 1450	5309	55 25 00.62	1,397	0,037 1289	5204	56 25 21.21	105,53
1,348	0,011 6759	5304	55 27 50.08	1,398	0,037 6405	5203	56 27 03.72	105,54
1,349	0,012 2058	5300	55 29 40.44	1,399	0,038 1495	5203	56 28 51.54	105,54
1,350	1,012 7336	5295	55 31 31.72	1,400	1,038 6591	5204	56 29 38.41	105,55
n	2 Sin $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	n	2 Sin $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	n	2 Sin $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	n	2 Sin $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	n

BRITISH MARITIME TABLES

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
1.300	1.058 6594	.5674	59.39 38.21	104.65	1.350	1.053 4837	.4838	60.55 59.27	100.21
.001	.001 1613	.5674	59.42 38.22	104.65	.351	.001 1613	.4831	60.57 59.43	100.12
.002	.002 3226	.5674	59.44 38.21	104.67	.352	.002 3226	.4830	60.59 59.51	100.03
.003	.003 4839	.5674	59.45 38.21	104.68	.353	.003 4839	.4826	60.60 59.50	99.95
.004	.004 6452	.5674	59.47 38.20	104.69	.354	.004 6452	.4821	60.62 59.41	99.86
1.305	1.041 1876	.5654	59.50 38.35	104.20	1.355	1.045 9076	.4837	61.04 10.22	99.77
.005	.005 8069	.5654	59.51 38.35	104.11	.356	.005 8069	.4831	61.05 58.05	99.69
.006	.006 9682	.5654	59.52 38.35	104.02	.357	.006 9682	.4826	61.07 58.39	99.60
.007	.007 12812	.5654	59.53 38.35	103.93	.358	.007 12812	.4824	61.09 58.15	99.51
.008	.008 14425	.5654	59.54 38.35	103.84	.359	.008 14425	.4820	61.10 57.61	99.42
1.310	1.011 2684	.5630	59.48 38.25	103.75	1.360	1.038 3200	.4816	61.12 56.99	99.34
.010	.011 2684	.5630	59.49 38.25	103.67	.361	.038 3200	.4812	61.14 56.29	99.25
.012	.012 7134	.5630	59.51 38.25	103.58	.362	.012 7134	.4808	61.15 55.49	99.16
.013	.013 8747	.5630	59.53 38.25	103.49	.363	.013 8747	.4803	61.17 54.69	99.08
.014	.014 9897	.5630	59.54 38.25	103.40	.364	.014 9897	.4799	61.19 53.84	98.99
1.315	1.006 3278	.5608	59.56 38.19	103.31	1.365	1.070 7236	.4795	61.20 52.99	98.90
.015	.015 9897	.5608	59.58 38.19	103.22	.366	.070 7236	.4791	61.22 51.45	98.82
.017	.017 1439	.5608	60.00 38.19	103.13	.367	.017 1439	.4786	61.24 50.22	98.73
.018	.017 2684	.5608	60.01 38.19	103.04	.368	.017 2684	.4782	61.25 48.99	98.64
.019	.018 3834	.5608	60.03 38.19	102.95	.369	.018 3834	.4778	61.27 47.76	98.55
1.320	1.001 2684	.5587	60.05 38.13	102.86	1.370	1.073 1158	.4774	61.29 46.61	98.47
.020	.020 3151	.5587	60.06 38.13	102.77	.371	.073 1158	.4770	61.30 44.44	98.38
.022	.020 7134	.5587	60.08 38.13	102.68	.372	.020 7134	.4766	61.32 42.78	98.30
.023	.021 12812	.5587	60.10 38.13	102.59	.373	.021 12812	.4761	61.34 41.03	98.21
.024	.021 2684	.5587	60.12 38.13	102.50	.374	.021 2684	.4757	61.35 39.29	98.12
1.325	1.001 2684	.5565	60.13 38.13	102.41	1.375	1.075 4175	.4753	61.37 37.58	98.04
.025	.021 3834	.5565	60.15 38.13	102.32	.376	.075 4175	.4749	61.38 35.27	97.95
.027	.021 8747	.5565	60.17 38.13	102.24	.377	.021 8747	.4745	61.40 33.18	97.86
.028	.022 1439	.5565	60.18 38.13	102.15	.378	.022 1439	.4740	61.42 31.00	97.78
.029	.022 2684	.5565	60.20 38.13	102.06	.379	.022 2684	.4735	61.43 28.73	97.69
1.330	1.001 6810	.5541	60.21 38.10	101.97	1.380	1.077 8087	.4732	61.45 26.38	97.61
.030	.023 1260	.5541	60.23 38.10	101.88	.381	.077 8087	.4728	61.47 24.04	97.52
.032	.023 6668	.5541	60.25 38.10	101.79	.382	.023 6668	.4724	61.48 21.42	97.43
.033	.023 8747	.5541	60.27 38.10	101.71	.383	.023 8747	.4720	61.50 18.81	97.35
.034	.023 9897	.5541	60.29 38.10	101.62	.384	.023 9897	.4715	61.51 16.12	97.26
1.335	1.001 6810	.5518	60.30 38.01	101.53	1.385	1.080 2215	.4711	61.53 13.34	97.18
.035	.024 1260	.5518	60.32 38.01	101.44	.386	.080 2215	.4707	61.55 10.47	97.09
.037	.024 6668	.5518	60.34 38.01	101.35	.387	.024 6668	.4703	61.56 7.52	97.01
.038	.024 8747	.5518	60.35 38.01	101.26	.388	.024 8747	.4699	61.58 4.81	96.92
.039	.024 9897	.5518	60.37 38.01	101.18	.389	.024 9897	.4695	61.60 0.36	96.83
1.340	1.001 6810	.5494	60.39 38.01	101.09	1.390	1.082 5820	.4691	61.62 0.13	96.75
.040	.025 1260	.5494	60.40 38.01	101.00	.391	.082 5820	.4686	61.63 14.86	96.66
.042	.025 6668	.5494	60.42 38.01	100.91	.392	.025 6668	.4682	61.64 31.48	96.58
.043	.025 8747	.5494	60.44 38.01	100.82	.393	.025 8747	.4678	61.66 28.01	96.49
.044	.025 9897	.5494	60.45 38.01	100.74	.394	.025 9897	.4674	61.68 04.40	96.41
1.345	1.001 6810	.5476	60.47 38.01	100.65	1.395	1.084 9801	.4670	61.69 40.83	96.32
.045	.026 1260	.5476	60.49 38.01	100.56	.396	.084 9801	.4666	61.71 17.11	96.24
.047	.026 6668	.5476	60.50 38.01	100.47	.397	.026 6668	.4662	61.73 53.30	96.15
.048	.026 8747	.5476	60.52 38.01	100.38	.398	.026 8747	.4657	61.74 20.41	96.07
.049	.026 9897	.5476	60.54 38.01	100.30	.399	.026 9897	.4653	61.76 05.44	95.98
1.350	1.001 6810	.5458	60.55 38.01	100.21	1.400	1.087 2198	.4649	61.77 41.37	95.90
u	$2 \tan^{-1} \frac{e^u - 1}{e^u + 1}$	$\tanh u$	$2 \tan^{-1} \frac{e^u - 1}{e^u + 1}$	$\coth u$	u	$2 \tan^{-1} \frac{e^u - 1}{e^u + 1}$	$\tanh u$	$2 \tan^{-1} \frac{e^u - 1}{e^u + 1}$	$\coth u$

The Godermannian.

u	$g(u)$	$w(u)$	$g(u)$	$w(u)$	u	$g(u)$	$w(u)$	$g(u)$	$w(u)$
1.000	1.087 2298	0.999	0.1 37 41.37	95.99	1.450	1.304 6559	4147	0.1 35 35.11	91.22
0.991	0.889 7143	0.905	0.1 39 17.43	95.86	1.461	1.310 4101	4144	0.1 37 37.47	91.04
0.982	0.888 1788	0.911	0.2 39 54.00	95.73	1.472	1.316 7525	4141	0.1 39 39.41	90.86
0.973	0.888 6427	0.917	0.2 41 28.08	95.61	1.483	1.322 10921	4138	0.1 40 40.39	90.67
0.964	0.889 1662	0.923	0.2 43 04.28	95.50	1.494	1.328 14593	4135	0.1 43 43.39	90.49
1.005	1.088 6961	0.990	0.2 45 30.80	95.47	1.455	1.312 2051	4127	0.1 43 43.35	91.31
0.996	0.890 6420	0.905	0.2 47 15.41	95.39	1.466	1.317 6452	4124	0.1 45 45.00	91.13
0.987	0.890 3912	0.910	0.2 48 50.28	95.30	1.477	1.323 8922	4121	0.1 46 46.30	90.95
0.978	0.890 9860	0.916	0.2 50 25.81	95.22	1.488	1.328 5496	4117	0.1 48 48.07	90.77
0.969	0.891 4175	0.922	0.2 52 01.02	95.14	1.499	1.333 9220	4114	0.1 49 49.31	90.59
1.010	1.091 4585	0.988	0.2 53 36.14	95.05	1.490	1.344 4135	4097	0.1 53 53.13	90.99
0.991	0.931 3194	0.941	0.2 55 11.12	94.97	1.501	1.344 8541	4094	0.1 55 55.11	90.82
0.982	0.932 7993	0.946	0.2 56 46.01	94.88	1.512	1.345 2943	4091	0.1 56 56.09	90.64
0.973	0.933 2591	0.951	0.2 58 20.98	94.80	1.523	1.345 7346	4088	0.1 58 58.07	90.46
0.964	0.933 7185	0.956	0.2 59 55.94	94.71	1.534	1.346 1741	4084	0.1 59 59.04	90.28
1.015	1.094 1775	0.988	0.2 61 30.11	94.63	1.495	1.346 6141	4075	0.1 61 61.11	90.99
0.996	0.934 6391	0.943	0.2 63 04.99	94.55	1.506	1.347 9599	4072	0.1 63 63.09	90.81
0.987	0.935 0942	0.948	0.2 64 39.82	94.46	1.517	1.347 4052	4069	0.1 64 64.06	90.63
0.978	0.935 5530	0.953	0.2 66 14.64	94.38	1.528	1.347 8505	4066	0.1 66 66.04	90.45
0.969	0.936 0021	0.957	0.2 67 49.50	94.29	1.539	1.348 2941	4062	0.1 67 67.00	90.27
1.020	1.096 3953	0.997	0.2 69 24.41	94.21	1.496	1.348 7341	4053	0.1 69 69.09	90.99
0.991	0.936 8528	0.952	0.2 70 59.28	94.13	1.507	1.349 1777	4050	0.1 70 70.07	90.81
0.982	0.937 3100	0.957	0.2 72 34.16	94.04	1.518	1.349 6205	4047	0.1 71 71.04	90.63
0.973	0.937 7637	0.961	0.2 74 09.01	93.96	1.529	1.349 1069	4044	0.1 72 72.00	90.45
0.964	0.938 2190	0.965	0.2 75 43.88	93.88	1.540	1.350 5491	4040	0.1 73 73.00	90.27
1.025	1.098 1991	0.997	0.2 77 18.71	93.79	1.497	1.350 9890	4031	0.1 75 75.07	90.99
0.991	0.939 6594	0.953	0.2 78 53.56	93.71	1.508	1.351 4320	4028	0.1 77 77.07	90.81
0.982	0.940 1130	0.958	0.2 80 28.43	93.62	1.519	1.351 8755	4025	0.1 78 78.04	90.63
0.973	0.940 5637	0.962	0.2 82 03.28	93.54	1.530	1.352 3185	4022	0.1 80 80.02	90.45
0.964	0.941 0153	0.966	0.2 83 38.15	93.46	1.541	1.352 7610	4018	0.1 81 81.04	90.27
1.030	1.101 6131	0.999	0.2 85 12.98	93.37	1.498	1.353 1998	4009	0.1 83 83.03	90.99

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\sec u$	$\csc u$	$\cot u$	$\tanh u$	$\operatorname{sech} u$	$\operatorname{csch} u$	$\coth u$	$\operatorname{arcsinh} u$	$\operatorname{arccosh} u$	$\operatorname{arctanh} u$	$\operatorname{arcsch} u$	$\operatorname{arccsch} u$	$\operatorname{arccoth} u$
1.500	1.151 2731	0.425	61 50 35.73	87.68	1.550	1.151 2731	4062	66 02 01.81	83.78							
1.501	1.151 4542	4.412	61 52 05.37	87.66	1.551	1.151 9139	4058	66 03 28.35	83.71							
1.502	1.151 5728	4.411	61 53 30.03	87.58	1.552	1.152 3105	4055	66 04 49.22	83.63							
1.503	1.151 1009	4.299	61 54 56.14	87.44	1.553	1.153 7246	4051	66 06 12.81	83.55							
1.504	1.151 4257	4.299	61 56 25.82	87.37	1.554	1.154 1307	4047	66 07 36.33	83.48							
1.505	1.151 1100	4.241	61 57 53.45	87.30	1.555	1.154 5347	4043	66 08 59.77	83.40							
1.506	1.151 2720	4.238	61 59 20.40	87.21	1.556	1.155 9394	4039	66 10 23.44	83.33							
1.507	1.151 6030	4.241	61 60 47.50	87.13	1.557	1.155 3421	4036	66 11 46.42	83.25							
1.508	1.151 1108	4.230	61 62 14.65	87.05	1.558	1.155 7436	4032	66 13 09.63	83.17							
1.509	1.151 5377	4.216	61 63 41.66	86.97	1.559	1.156 1486	4029	66 14 32.77	83.10							
1.510	1.151 9501	4.213	61 65 08.59	86.89	1.560	1.156 5513	4025	66 15 55.83	83.02							
1.511	1.151 3842	4.209	61 66 35.41	86.81	1.561	1.156 9530	4021	66 17 18.81	82.95							
1.512	1.151 7900	4.205	61 68 02.22	86.73	1.562	1.157 3550	4018	66 18 41.72	82.87							
1.513	1.151 2552	4.201	61 69 28.91	86.64	1.563	1.157 7571	4014	66 20 04.55	82.79							
1.514	1.151 6121	4.197	61 70 55.53	86.56	1.564	1.158 1583	4010	66 21 27.31	82.72							
1.515	1.151 0637	4.193	61 72 22.07	86.50	1.565	1.158 5592	4007	66 22 49.99	82.64							
1.516	1.151 4961	4.190	61 73 48.54	86.42	1.566	1.158 9597	4003	66 24 12.59	82.57							
1.517	1.151 8900	4.186	61 75 14.61	86.33	1.567	1.159 3598	4000	66 25 35.12	82.49							
1.518	1.151 3080	4.183	61 76 41.24	86.26	1.568	1.159 7595	3997	66 26 57.57	82.42							
1.519	1.151 7060	4.179	61 78 07.13	86.18	1.569	1.160 1589	3993	66 28 19.95	82.34							
1.520	1.151 1337	4.175	61 79 33.58	86.11	1.570	1.160 5579	3989	66 29 42.25	82.26							
1.521	1.151 5709	4.171	61 80 59.61	86.03	1.571	1.160 9560	3985	66 31 04.48	82.18							
1.522	1.151 9588	4.167	61 82 25.63	85.95	1.572	1.161 3548	3981	66 32 26.63	82.11							
1.523	1.151 4011	4.163	61 83 51.54	85.87	1.573	1.161 7537	3977	66 33 48.71	82.04							
1.524	1.151 8185	4.159	61 85 17.38	85.79	1.574	1.162 1526	3973	66 35 10.71	81.96							
1.525	1.151 2361	4.155	61 86 43.13	85.72	1.575	1.162 5515	3970	66 36 32.63	81.89							
1.526	1.151 6516	4.152	61 88 08.81	85.64	1.576	1.162 9503	3966	66 37 54.48	81.81							
1.527	1.151 1060	4.148	61 89 34.11	85.56	1.577	1.163 3492	3963	66 39 16.25	81.74							
1.528	1.151 4812	4.144	61 90 59.03	85.48	1.578	1.163 7480	3959	66 40 37.96	81.66							
1.529	1.151 8951	4.141	61 92 25.37	85.40	1.579	1.164 1469	3955	66 41 59.58	81.59							
1.530	1.151 3093	4.137	61 93 51.74	85.33	1.580	1.164 5457	3952	66 43 21.13	81.51							
1.531	1.151 7238	4.133	61 95 18.03	85.25	1.581	1.164 9445	3948	66 44 42.61	81.44							
1.532	1.151 1389	4.129	61 96 44.21	85.17	1.582	1.165 3433	3945	66 46 04.01	81.36							
1.533	1.151 5486	4.125	61 98 10.37	85.09	1.583	1.165 7421	3941	66 47 25.33	81.29							
1.534	1.151 9600	4.122	61 99 36.42	85.02	1.584	1.166 1409	3937	66 48 46.58	81.21							
1.535	1.151 3730	4.118	61 101 02.30	84.94	1.585	1.166 5397	3934	66 50 07.76	81.14							
1.536	1.151 7861	4.114	61 102 28.30	84.86	1.586	1.166 9385	3930	66 51 28.88	81.06							
1.537	1.151 1958	4.110	61 103 54.12	84.78	1.587	1.167 3373	3926	66 52 49.89	80.99							
1.538	1.151 6097	4.107	61 105 19.87	84.71	1.588	1.167 7361	3923	66 54 10.84	80.92							
1.539	1.151 0222	4.103	61 106 45.54	84.63	1.589	1.168 1349	3919	66 55 31.72	80.84							
1.540	1.151 4323	4.099	61 108 11.13	84.55	1.590	1.168 5337	3916	66 56 52.52	80.77							
1.541	1.151 8420	4.095	61 109 36.64	84.48	1.591	1.168 9325	3912	66 58 13.25	80.69							
1.542	1.151 2511	4.092	61 111 02.08	84.40	1.592	1.169 3313	3908	66 59 33.91	80.61							
1.543	1.151 6604	4.088	61 112 27.41	84.33	1.593	1.169 7301	3905	67 00 54.49	80.54							
1.544	1.151 0690	4.085	61 113 52.72	84.25	1.594	1.170 1289	3901	67 02 15.00	80.47							
1.545	1.151 4774	4.081	61 115 18.03	84.17	1.595	1.170 5277	3898	67 03 35.43	80.40							
1.546	1.151 8861	4.077	61 116 43.30	84.09	1.596	1.170 9265	3894	67 04 55.70	80.32							
1.547	1.151 2950	4.074	61 118 08.51	84.01	1.597	1.171 3253	3891	67 06 15.97	80.25							
1.548	1.151 7037	4.070	61 119 33.68	83.93	1.598	1.171 7241	3887	67 07 36.28	80.17							
1.549	1.151 1125	4.066	61 120 58.95	83.86	1.599	1.172 1229	3884	67 08 56.42	80.10							
1.550	1.151 5208	4.062	61 122 24.18	83.78	1.600	1.172 5217	3880	67 10 16.48	80.03							
u	$\sin u$	$\cos u$	$\tan u$	$\sec u$	$\csc u$	$\cot u$	$\tanh u$	$\operatorname{sech} u$	$\operatorname{csch} u$	$\coth u$	$\operatorname{arcsinh} u$	$\operatorname{arccosh} u$	$\operatorname{arctanh} u$	$\operatorname{arcsch} u$	$\operatorname{arccsch} u$	$\operatorname{arccoth} u$

The Gudermanns.

u	$gd\ u$	$-u'$	$gd\ u$	$-u'$	u	$gd\ u$	$-u'$	$gd\ u$	$-u'$
1.600	1.172 33041	3880	67 10 16.48	70.03	1.650	1.101 31200	3701	68 15 36.70	70.41
.001	1.172 74721	3876	67 11 36.47	70.05	.001	1.101 48782	3700	68 16 48.13	70.43
.002	1.173 11390	3873	67 12 59.90	70.08	.002	1.102 90571	3699	68 17 59.11	70.47
.003	1.173 52172	3869	67 14 16.24	70.10	.003	1.102 42577	3698	68 19 18.67	70.50
.004	1.173 90884	3865	67 15 36.00	70.13	.004	1.102 90800	3697	68 20 31.83	70.54
1.605	1.174 32388	3862	67 16 55.60	70.16	1.655	1.103 10985	3697	68 21 47.91	70.68
.006	1.174 74808	3858	67 18 15.31	70.18	.006	1.103 53441	3696	68 23 08.03	70.68
.007	1.175 09005	3855	67 19 31.80	70.21	.007	1.103 99016	3695	68 24 31.38	70.69
.008	1.175 45118	3851	67 20 51.34	70.24	.008	1.104 44915	3694	68 25 48.79	70.84
.009	1.175 81019	3848	67 22 13.71	70.26	.009	1.104 93200	3693	68 26 54.57	70.77
1.610	1.176 22111	3844	67 23 33.67	70.29	1.660	1.105 00312	3693	68 28 07.30	70.79
.011	1.176 60590	3841	67 24 52.41	70.32	.011	1.105 47100	3692	68 29 17.07	70.81
.012	1.176 98616	3837	67 26 11.50	70.35	.012	1.105 93575	3691	68 30 25.11	70.89
.013	1.177 37239	3834	67 27 30.64	70.37	.013	1.106 40107	3690	68 31 31.91	70.90
.014	1.177 75812	3830	67 28 49.65	70.40	.014	1.106 86795	3689	68 32 38.51	70.93
1.615	1.178 13900	3826	67 30 08.64	70.43	1.665	1.106 83300	3688	68 33 43.84	70.98
.016	1.178 52115	3823	67 31 27.90	70.46	.016	1.107 29901	3687	68 34 48.73	71.00
.017	1.178 90360	3819	67 32 46.32	70.48	.017	1.107 76593	3686	68 35 53.00	71.02
.018	1.179 28531	3816	67 34 05.60	70.51	.018	1.108 23385	3685	68 36 56.78	71.15
.019	1.179 66607	3812	67 35 23.73	70.53	.019	1.108 70315	3684	68 37 59.97	71.08
1.620	1.180 04708	3809	67 36 42.33	70.56	1.670	1.108 66722	3683	68 39 01.30	71.01
.021	1.180 42855	3805	67 38 00.80	70.59	.021	1.109 13370	3682	68 40 01.77	71.04
.022	1.180 80980	3802	67 39 19.31	70.62	.022	1.109 59918	3681	68 41 01.40	71.07
.023	1.181 18980	3798	67 40 37.90	70.65	.023	1.110 06570	3680	68 42 00.11	71.10
.024	1.181 56955	3795	67 41 56.00	70.67	.024	1.110 53320	3679	68 43 00.01	71.12
1.625	1.181 94958	3791	67 43 14.24	70.70	1.675	1.110 52911	3678	68 44 01.01	71.15
.026	1.182 32988	3788	67 44 32.90	70.73	.026	1.110 94448	3677	68 45 00.55	71.18
.027	1.182 70954	3784	67 45 50.99	70.76	.027	1.111 40112	3676	68 46 00.10	71.21
.028	1.183 08940	3781	67 47 08.51	70.78	.028	1.111 85833	3675	68 47 00.52	71.24
.029	1.183 46945	3777	67 48 26.30	70.81	.029	1.112 31600	3674	68 48 00.85	71.27
1.630	1.183 84930	3774	67 49 44.33	70.84	1.680	1.112 27661	3673	68 49 01.07	71.30
.031	1.184 22940	3770	67 51 02.11	70.77	.031	1.112 73365	3672	68 50 01.34	71.33
.032	1.184 60931	3767	67 52 19.38	70.80	.032	1.113 19000	3671	68 51 01.57	71.37
.033	1.184 98900	3763	67 53 37.54	70.82	.033	1.113 64675	3670	68 52 01.77	71.40
.034	1.185 36857	3760	67 54 55.41	70.85	.034	1.114 10397	3669	68 53 01.95	71.43
1.635	1.185 72815	3755	67 56 13.60	70.88	1.685	1.114 07111	3668	68 54 02.12	71.46
.036	1.186 10790	3753	67 57 30.67	70.91	.036	1.114 52818	3667	68 55 02.36	71.49
.037	1.186 48741	3750	67 58 47.41	70.94	.037	1.114 98500	3666	68 56 02.57	71.52
.038	1.186 86660	3746	68 00 03.74	70.96	.038	1.115 44160	3665	68 57 02.73	71.55
.039	1.187 24553	3743	68 01 21.07	70.99	.039	1.115 89800	3664	68 58 02.85	71.58
1.640	1.187 62533	3740	68 02 38.12	71.02	1.690	1.115 86200	3663	68 59 02.90	71.61
.041	1.187 99990	3735	68 03 59.21	71.05	.041	1.116 31870	3662	68 59 02.98	71.64
.042	1.188 37424	3732	68 05 14.22	71.08	.042	1.116 77521	3661	69 00 03.00	71.67
.043	1.188 74855	3729	68 06 29.10	71.01	.043	1.117 23150	3660	69 01 03.01	71.71
.044	1.189 12280	3725	68 07 43.03	71.03	.044	1.117 68760	3659	69 02 03.00	71.74
1.645	1.189 49605	3722	68 09 01.84	71.06	1.695	1.117 64231	3658	69 03 03.11	71.77
.046	1.189 86955	3718	68 10 20.50	71.09	.046	1.118 09774	3657	69 04 03.14	71.80
.047	1.190 24311	3715	68 11 37.22	71.12	.047	1.118 55291	3656	69 05 03.15	71.83
.048	1.190 61654	3711	68 12 53.80	71.15	.048	1.119 00785	3655	69 06 03.16	71.87
.049	1.190 98991	3708	68 14 10.32	71.18	.049	1.119 46260	3654	69 07 03.16	71.90
1.650	1.191 36370	3704	68 15 26.76	71.21	1.700	1.119 41843	3653	69 08 03.60	71.93
u	$21an^{-1}gd^{-1}u$	u'	$21an^{-1}gd^{-1}u$	u'	u	$21an^{-1}gd^{-1}u$	u'	$21an^{-1}gd^{-1}u$	u'

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
1.700	1.300 41.13	3536	60 17 30.60	71.03	1.750	1.226 68.47	3374	70 17 01.89	69.59
.701	1.303 7077	3543	60 18 53.39	71.00	.751	1.227 0219	3370	70 18 11.44	69.52
.702	1.310 1.305	3550	60 20 05.32	71.70	.752	1.227 3588	3367	70 19 20.93	69.45
.703	1.310 4735	3558	60 21 18.68	71.72	.753	1.227 6954	3364	70 20 30.35	69.39
.704	1.310 8459	3564	60 22 30.77	71.66	.754	1.228 0310	3361	70 21 39.71	69.32
1.705	1.311 1280	3569	60 23 43.39	71.59	1.755	1.228 3676	3358	70 22 49.00	69.26
.706	1.311 5307	3576	60 24 55.95	71.52	.756	1.228 7032	3355	70 23 58.23	69.19
.707	1.311 8811	3583	60 26 08.13	71.45	.757	1.229 0385	3351	70 25 07.30	69.13
.708	1.312 1314	3590	60 27 20.85	71.38	.758	1.229 3735	3348	70 26 16.38	69.06
.709	1.312 5830	3596	60 28 33.20	71.32	.759	1.229 7081	3345	70 27 25.51	69.00
1.710	1.312 9335	3603	60 29 45.40	71.25	1.760	1.230 0425	3342	70 28 34.48	68.93
.711	1.313 3860	3609	60 30 57.70	71.18	.761	1.230 3765	3339	70 29 43.38	68.87
.712	1.313 6131	3616	60 32 09.85	71.11	.762	1.230 7103	3336	70 30 52.22	68.80
.713	1.313 6848	3623	60 33 21.03	71.05	.763	1.231 0437	3333	70 32 00.99	68.74
.714	1.314 1370	3630	60 34 33.94	71.08	.764	1.231 3768	3330	70 33 09.69	68.67
1.715	1.314 6897	3636	60 35 45.80	71.01	1.765	1.231 7096	3326	70 34 18.31	68.61
.716	1.315 0300	3643	60 36 57.70	71.84	.766	1.232 0420	3323	70 35 26.94	68.54
.717	1.315 3774	3649	60 38 09.52	71.77	.767	1.232 3741	3320	70 36 35.12	68.48
.718	1.315 7253	3657	60 39 21.32	71.71	.768	1.232 7060	3317	70 37 43.87	68.42
.719	1.316 0727	3663	60 40 32.99	71.64	.769	1.233 0376	3314	70 38 52.25	68.35
1.720	1.316 4205	3670	60 41 44.60	71.58	1.770	1.233 3688	3311	70 40 00.57	68.29
.721	1.316 7687	3677	60 42 56.11	71.51	.771	1.233 6997	3307	70 41 08.83	68.22
.722	1.317 1132	3684	60 44 07.62	71.44	.772	1.234 0301	3304	70 42 17.02	68.16
.723	1.317 4581	3690	60 45 19.02	71.37	.773	1.234 3606	3301	70 43 25.12	68.09
.724	1.317 8053	3697	60 46 30.37	71.31	.774	1.234 6905	3298	70 44 33.20	68.03
1.725	1.318 1938	3704	60 47 41.61	71.23	1.775	1.235 0202	3295	70 45 41.20	67.96
.726	1.318 5860	3711	60 48 52.85	71.16	.776	1.235 3495	3292	70 46 49.13	67.90
.727	1.318 9809	3717	60 50 03.90	71.10	.777	1.235 6785	3289	70 47 57.00	67.84
.728	1.319 3785	3724	60 51 15.45	71.03	.778	1.236 0073	3286	70 49 04.80	67.77
.729	1.319 7799	3731	60 52 26.06	70.96	.779	1.236 3357	3283	70 50 12.54	67.71
1.730	1.320 1837	3738	60 53 37.00	70.90	1.780	1.236 6638	3279	70 51 20.22	67.64
.731	1.320 5893	3744	60 54 47.88	70.83	.781	1.236 9916	3276	70 52 27.83	67.58
.732	1.320 9965	3751	60 55 58.68	70.76	.782	1.237 3191	3273	70 53 35.38	67.52
.733	1.321 4035	3758	60 57 09.12	70.70	.783	1.237 6463	3270	70 54 42.87	67.45
.734	1.321 8101	3765	60 58 20.10	70.63	.784	1.237 9731	3267	70 55 50.29	67.39
1.735	1.322 2185	3772	60 59 30.71	70.56	1.785	1.238 3007	3264	70 56 57.65	67.33
.736	1.322 6294	3779	60 60 41.25	70.50	.786	1.238 6280	3261	70 58 04.94	67.26
.737	1.323 0321	3785	60 61 51.72	70.43	.787	1.238 9549	3258	70 59 12.17	67.20
.738	1.323 4365	3792	60 63 02.13	70.37	.788	1.239 2815	3255	71 00 19.34	67.13
.739	1.323 8425	3799	60 64 12.47	70.30	.789	1.239 6078	3252	71 01 26.41	67.07
1.740	1.324 2502	3806	60 65 22.75	70.23	1.790	1.240 9339	3249	71 02 33.48	67.01
.741	1.324 6599	3813	60 66 33.00	70.18	.791	1.241 2596	3246	71 03 40.40	66.94
.742	1.325 0707	3820	60 67 43.10	70.11	.792	1.241 5850	3243	71 04 47.37	66.88
.743	1.325 4831	3826	60 68 53.18	70.05	.793	1.241 9101	3240	71 05 54.24	66.82
.744	1.325 8968	3833	60 69 03.19	69.98	.794	1.242 2349	3236	71 07 01.01	66.76
1.745	1.326 3130	3840	60 70 13.14	69.91	1.795	1.242 5593	3233	71 08 07.73	66.69
.746	1.326 7298	3847	60 71 23.02	69.85	.796	1.242 8835	3230	71 09 14.30	66.63
.747	1.327 1482	3853	60 72 32.84	69.78	.797	1.243 2074	3227	71 10 20.80	66.57
.748	1.327 5681	3860	60 73 42.59	69.72	.798	1.243 5310	3224	71 11 27.24	66.50
.749	1.327 9892	3867	60 74 52.27	69.65	.799	1.243 8543	3221	71 12 33.69	66.44
1.750	1.328 4127	3874	60 75 01.80	69.59	1.800	1.244 1782	3218	71 13 40.40	66.38
u	$2 \tan^{-1}(\sin u)$	$\frac{1}{2} \operatorname{sech} u$	$2 \tan^{-1}(\cot u)$	$\frac{1}{2} \operatorname{sech} u$	u	$2 \tan^{-1}(\sin u)$	$\frac{1}{2} \operatorname{sech} u$	$2 \tan^{-1}(\cot u)$	$\frac{1}{2} \operatorname{sech} u$

The Undermanned.

x	$g_1 x$	$=f_1 x$	$g_2 x$	$=f_2 x$	n	$g_1 n$	$=f_1 n$	$g_2 n$	$=f_2 n$
1,800	1,243 1612	3208	71 13 40-40	66-38	1,850	1,258 8799	3050	72 07 41-78	66-30
1,801	1,243 68-28	3208	71 14 40-75	66-31	1,851	1,259 3156	3050	72 08 41-95	66-21
1,802	1,243 80-12	3208	71 15 41-03	66-25	1,852	1,260 00-00	3050	72 09 42-20	66-18
1,803	1,244 12-52	3209	71 16 40-25	66-19	1,853	1,260 20-52	3051	72 10 42-41	66-12
1,804	1,244 44-00	3209	71 18 05-41	66-13	1,854	1,260 10-11	3052	72 11 51-50	66-06
1,805	1,244 26-61	3209	71 19 11-50	66-06	1,855	1,260 30-00	3051	72 12 57-53	66-00
1,806	1,245 08-05	3209	71 20 17-53	66-00	1,856	1,260 71-19	3051	72 13 00-58	66-04
1,807	1,245 40-61	3209	71 21 24-50	65-54	1,857	1,261 00-00	3052	72 13 03-03	66-18
1,808	1,245 72-50	3204	71 22 30-41	65-28	1,858	1,261 31-05	3051	72 16 00-26	66-16
1,809	1,246 03-51	3204	71 23 33-26	65-21	1,859	1,261 62-00	3051	72 17 00-00	66-20
1,810	1,246 36-00	3205	71 24 41-01	65-25	1,860	1,261 00-02	3050	72 18 11-23	66-20
1,811	1,246 68-07	3205	71 25 49-20	65-00	1,861	1,261 31-00	3052	72 19 11-33	66-04
1,812	1,247 00-00	3205	71 26 52-12	65-04	1,862	1,262 00-00	3051	72 20 17-00	66-28
1,813	1,247 31-00	3209	71 27 58-01	65-50	1,863	1,262 31-00	3050	72 21 16-01	66-52
1,814	1,247 63-07	3205	71 29 03-54	65-50	1,864	1,263 12-00	3052	72 22 22-10	66-46
1,815	1,247 95-11	3205	71 30 09-03	65-51	1,865	1,263 43-01	3052	72 23 21-51	66-50
1,816	1,248 27-12	3206	71 31 14-12	65-38	1,866	1,264 73-00	3052	72 24 21-33	66-11
1,817	1,248 58-00	3207	71 32 19-72	65-32	1,867	1,264 00-00	3050	72 25 20-71	66-28
1,818	1,248 90-05	3204	71 33 25-06	65-45	1,868	1,264 31-02	3052	72 26 21-12	66-22
1,819	1,249 22-05	3204	71 34 30-28	65-19	1,869	1,264 62-01	3051	72 27 22-02	66-16
1,820	1,249 54-07	3208	71 35 35-44	65-13	1,870	1,264 93-55	3051	72 28 23-20	66-11
1,821	1,250 85-13	3255	71 36 40-54	65-07	1,871	1,265 24-05	3050	72 29 24-33	66-05
1,822	1,250 16-00	3252	71 37 45-38	65-01	1,872	1,265 55-01	3051	72 30 24-00	66-00
1,823	1,250 46-00	3249	71 38 50-59	64-05	1,873	1,265 85-05	3052	72 31 24-01	66-04
1,824	1,250 76-03	3249	71 39 55-47	64-28	1,874	1,266 15-00	3050	72 32 23-75	66-39
1,825	1,251 11-01	3243	71 41 00-32	64-31	1,875	1,266 45-01	3050	72 33 23-00	66-31
1,826	1,251 42-00	3209	71 42 05-11	64-30	1,876	1,266 75-00	3051	72 34 22-57	66-25
1,827	1,251 73-07	3207	71 43 09-81	64-20	1,877	1,267 05-02	3051	72 35 22-00	66-19
1,828	1,252 03-14	3251	71 44 14-51	64-01	1,878	1,267 35-01	3258	72 36 21-01	66-13
1,829	1,252 33-04	3251	71 45 19-12	64-58	1,879	1,267 65-08	3255	72 37 20-13	66-57
1,830	1,252 63-04	3258	71 46 23-67	64-52	1,880	1,267 95-11	3255	72 38 20-00	66-52
1,831	1,252 93-00	3245	71 47 28-15	64-45	1,881	1,268 25-02	3256	72 39 20-00	66-49
1,832	1,253 23-13	3242	71 48 32-57	64-30	1,882	1,268 54-00	3272	72 40 20-00	66-40
1,833	1,253 53-01	3189	71 49 36-01	64-13	1,883	1,268 84-05	3271	72 41 20-10	66-13
1,834	1,253 83-05	3186	71 50 41-24	64-27	1,884	1,269 14-08	3271	72 42 20-20	66-28
1,835	1,254 13-06	3243	71 51 45-38	64-21	1,885	1,269 44-05	3278	72 43 20-75	66-22
1,836	1,254 43-07	3210	71 52 49-60	64-15	1,886	1,269 74-01	3265	72 44 20-01	66-16
1,837	1,254 73-00	3207	71 53 53-77	64-00	1,887	1,270 04-00	3264	72 45 20-00	66-11
1,838	1,255 03-01	3204	71 54 57-84	64-03	1,888	1,270 34-00	3260	72 46 20-15	66-05
1,839	1,255 33-03	3202	71 56 01-83	63-57	1,889	1,270 64-00	3257	72 47 20-11	66-00
1,840	1,255 63-04	3208	71 57 05-70	63-40	1,890	1,270 94-01	3251	72 48 20-13	66-03
1,841	1,256 03-00	3205	71 58 09-64	63-34	1,891	1,271 24-00	3254	72 49 20-00	66-19
1,842	1,256 33-01	3202	71 59 13-15	63-28	1,892	1,271 54-00	3265	72 50 20-00	66-26
1,843	1,256 63-00	3260	72 00 17-21	63-22	1,893	1,272 84-03	3261	72 51 20-00	66-20
1,844	1,257 03-03	3260	72 01 20-00	63-16	1,894	1,273 14-07	3253	72 52 20-00	66-20
1,845	1,257 33-03	3261	72 02 21-53	63-10	1,895	1,273 44-01	3261	72 53 20-00	66-04
1,846	1,257 63-00	3261	72 03 28-10	63-04	1,896	1,273 74-07	3267	72 54 20-00	66-28
1,847	1,257 93-00	3268	72 04 31-01	63-08	1,897	1,274 04-12	3251	72 55 20-00	66-52
1,848	1,258 23-05	3275	72 05 35-06	63-02	1,898	1,274 34-05	3252	72 56 20-00	66-47
1,849	1,258 53-08	3272	72 06 38-45	63-26	1,899	1,275 04-05	3260	72 57 20-10	66-41
1,850	1,258 83-00	3269	72 07 41-78	63-30	1,900	1,275 34-03	3266	72 58 20-51	66-35
<div> <div> x $g_1 x$ $=f_1 x$ </div> <div> $2 \log^{-1} (x)$ $2 \log^{-1} (f_1 x)$ $2 \log^{-1} (f_2 x)$ </div> </div>									

The Gudermannian.

u	\sin	\cos	\tan	\cot	u	\sin	\cos	\tan	\cot
1.0000	1.773 8403	2065	71 59 12.54	60.35	1.0150	1.288 1451	2769	73 48 19.01	57.53
.0010	1.774 1527	2064	71 59 14.81	60.29	.0100	1.288 4229	2768	73 49 16.51	57.47
.0020	1.774 4489	2063	71 59 17.13	60.21	.0200	1.288 7021	2767	73 50 13.05	57.42
.0030	1.774 7284	2062	71 59 19.51	60.18	.0300	1.288 9806	2766	73 51 11.36	57.36
.0040	1.775 0084	2061	71 59 21.94	60.12	.0400	1.289 2586	2765	73 52 08.66	57.31
1.0050	1.775 2897	2060	71 59 24.41	60.06	1.0500	1.289 5363	2764	73 53 05.96	57.25
.0060	1.775 5683	2059	71 59 26.81	60.01	.0500	1.289 8137	2763	73 54 03.18	57.20
.0070	1.775 8466	2058	71 59 29.26	59.95	.0600	1.290 0908	2762	73 55 00.35	57.14
.0080	1.776 1231	2057	71 59 31.74	59.89	.0700	1.290 3678	2761	73 55 57.46	57.09
.0090	1.776 3983	2056	71 59 34.27	59.84	.0800	1.290 6444	2760	73 56 54.52	57.03
1.0100	1.776 6722	2055	71 59 36.84	59.78	1.0500	1.290 9208	2759	73 57 51.53	56.98
.0110	1.776 9459	2054	71 59 39.42	59.72	.0500	1.291 1969	2758	73 58 48.48	56.92
.0120	1.777 2193	2053	71 59 42.02	59.66	.0600	1.291 4727	2757	73 59 45.38	56.87
.0130	1.777 4914	2052	71 59 44.65	59.61	.0700	1.291 7483	2756	73 60 42.22	56.81
.0140	1.777 7622	2051	71 59 47.31	59.55	.0800	1.292 0236	2755	73 61 39.00	56.76
1.0150	1.778 0317	2050	71 59 50.00	59.49	1.0500	1.292 2987	2754	73 62 35.73	56.70
.0160	1.778 3001	2049	71 59 52.68	59.43	.0500	1.292 5734	2753	73 63 32.41	56.65
.0170	1.778 5674	2048	71 59 55.38	59.38	.0600	1.292 8478	2752	73 64 29.03	56.60
.0180	1.778 8335	2047	71 59 58.09	59.32	.0700	1.293 1220	2751	73 65 25.60	56.54
.0190	1.779 0984	2046	71 59 60.82	59.26	.0800	1.293 3959	2750	73 66 22.12	56.49
1.0200	1.779 3621	2045	71 59 63.56	59.21	1.0500	1.293 6696	2749	73 67 18.58	56.43
.0210	1.779 6246	2044	71 59 66.32	59.15	.0500	1.293 9431	2748	73 68 14.98	56.38
.0220	1.779 8859	2043	71 59 69.09	59.09	.0600	1.294 2164	2747	73 69 11.33	56.32
.0230	1.780 1461	2042	71 59 71.87	59.03	.0700	1.294 4895	2746	73 70 07.63	56.27
.0240	1.780 4051	2041	71 59 74.67	58.98	.0800	1.294 7622	2745	73 71 03.87	56.22
1.0250	1.780 6629	2040	71 59 77.48	58.92	1.0500	1.295 0346	2744	73 72 00.05	56.16
.0260	1.780 9194	2039	71 59 80.30	58.87	.0500	1.295 3068	2743	73 72 56.20	56.11
.0270	1.781 1747	2038	71 59 83.13	58.81	.0600	1.295 5788	2742	73 73 52.33	56.06
.0280	1.781 4288	2037	71 59 85.97	58.76	.0700	1.295 8505	2741	73 74 48.39	56.00
.0290	1.781 6817	2036	71 59 88.82	58.70	.0800	1.296 1219	2740	73 75 44.38	55.95
1.0300	1.781 9334	2035	71 59 91.68	58.64	1.0500	1.296 3932	2739	73 76 40.32	55.89
.0310	1.782 1839	2034	71 59 94.55	58.59	.0500	1.296 6643	2738	73 77 36.20	55.84
.0320	1.782 4331	2033	71 59 97.43	58.53	.0600	1.296 9352	2737	73 78 32.03	55.78
.0330	1.782 6811	2032	71 59 100.32	58.47	.0700	1.297 2059	2736	73 79 27.83	55.73
.0340	1.782 9279	2031	71 59 103.22	58.42	.0800	1.297 4764	2735	73 80 23.58	55.68
1.0350	1.783 1734	2030	71 59 106.13	58.36	1.0500	1.297 7467	2734	73 81 19.29	55.62
.0360	1.783 4177	2029	71 59 109.05	58.31	.0500	1.298 0169	2733	73 82 14.95	55.57
.0370	1.783 6608	2028	71 59 111.98	58.25	.0600	1.298 2869	2732	73 83 10.57	55.52
.0380	1.783 9027	2027	71 59 114.92	58.19	.0700	1.298 5568	2731	73 84 06.15	55.47
.0390	1.784 1434	2026	71 59 117.87	58.14	.0800	1.298 8265	2730	73 85 01.69	55.41
1.0400	1.784 3829	2025	71 59 120.82	58.08	1.0500	1.299 0960	2729	73 85 57.19	55.36
.0410	1.784 6212	2024	71 59 123.78	58.03	.0500	1.299 3653	2728	73 86 52.64	55.30
.0420	1.784 8583	2023	71 59 126.75	57.97	.0600	1.299 6345	2727	73 87 48.05	55.25
.0430	1.785 0942	2022	71 59 129.72	57.92	.0700	1.299 9036	2726	73 88 43.42	55.20
.0440	1.785 3289	2021	71 59 132.70	57.86	.0800	1.300 1725	2725	73 89 38.74	55.14
1.0450	1.785 5624	2020	71 59 135.68	57.80	1.0500	1.300 4412	2724	73 90 34.02	55.09
.0460	1.785 7957	2019	71 59 138.67	57.75	.0500	1.300 7098	2723	73 91 29.26	55.04
.0470	1.786 0278	2018	71 59 141.67	57.69	.0600	1.300 9783	2722	73 92 24.46	54.98
.0480	1.786 2588	2017	71 59 144.67	57.64	.0700	1.301 2467	2721	73 93 19.62	54.93
.0490	1.786 4886	2016	71 59 147.68	57.58	.0800	1.301 5149	2720	73 94 14.74	54.88
1.0500	1.786 7173	2015	71 59 150.69	57.53	2.0000	1.301 7829	2658	74 35 07.34	54.83
u	$2 \tan^{-1}(\tan \frac{u}{2})$	$\cos u$	$2 \tan^{-1}(\tan \frac{u}{2})$	$\cot u$	u	$2 \tan^{-1}(\tan \frac{u}{2})$	$\cos u$	$2 \tan^{-1}(\tan \frac{u}{2})$	$\cot u$

The Gudermann.

z	$\operatorname{gd} z$	$\operatorname{erf} z$	$\operatorname{erfc} z$	$\operatorname{erf} z$	u	$\operatorname{gd} u$	$\operatorname{erf} u$	$\operatorname{erfc} u$	$\operatorname{erf} u$
2.000	1.301 7663	2558	74.35 97.53	54.81	2.050	1.311 7369	2531	75.09 98.53	54.69
.001	1.301 8052	2555	74.36 97.53	54.77	.001	1.311 6980	2530	75.09 98.53	54.69
.002	1.301 8441	2553	74.36 96.86	54.74	.002	1.311 6600	2528	75.11 97.00	54.64
.003	1.301 8830	2550	74.37 96.38	54.69	.003	1.311 6220	2525	75.13 95.00	54.60
.004	1.301 9215	2548	74.38 95.92	54.64	.004	1.311 5840	2523	75.15 93.00	54.56
2.005	1.301 9600	2545	74.39 95.51	54.59	2.055	1.321 5382	2500	75.41 91.11	54.40
.005	1.301 9985	2543	74.39 95.15	54.54	.005	1.321 4900	2498	75.41 90.00	54.36
.006	1.301 1037	2540	74.41 94.83	54.49	.006	1.321 4418	2495	75.45 87.00	54.30
.007	1.301 1076	2538	74.42 94.46	54.44	.007	1.321 3936	2493	75.49 85.00	54.26
.008	1.301 1115	2535	74.43 94.04	54.39	.008	1.321 3454	2490	75.53 83.00	54.21
.009	1.301 1154	2533	74.43 93.64	54.35	.009	1.321 2972	2488	75.57 81.00	54.17
2.010	1.301 1193	2531	74.44 93.27	54.30	2.060	1.331 2511	2465	75.68 79.11	54.11
.011	1.301 1232	2529	74.45 92.91	54.25	.011	1.331 2030	2463	75.71 77.11	54.06
.012	1.301 1271	2527	74.46 92.56	54.19	.012	1.331 1548	2460	75.75 75.00	54.01
.013	1.301 1310	2525	74.47 92.13	54.14	.013	1.331 1067	2457	75.79 73.00	53.96
.014	1.301 1349	2523	74.47 91.74	54.09	.014	1.331 0585	2455	75.83 71.00	53.91
2.015	1.301 1388	2520	74.48 91.38	54.04	2.065	1.341 0104	2432	75.87 69.11	53.85
.015	1.301 1427	2517	74.49 91.02	54.00	.015	1.341 0622	2430	75.91 67.00	53.80
.016	1.301 1466	2515	74.50 90.68	53.94	.016	1.341 0140	2427	75.95 65.00	53.75
.017	1.301 1505	2512	74.51 90.35	53.88	.017	1.341 0658	2425	75.99 63.00	53.70
.018	1.301 1544	2510	74.52 89.93	53.83	.018	1.341 0176	2422	76.03 61.00	53.65
.019	1.301 1583	2508	74.52 89.53	53.78	.019	1.341 0694	2420	76.07 59.00	53.60
2.020	1.301 1622	2507	74.53 89.15	53.73	2.070	1.351 0213	2400	76.19 57.11	53.54
.021	1.301 1661	2505	74.54 88.80	53.67	.021	1.351 0731	2398	76.23 55.00	53.49
.022	1.301 1700	2502	74.55 88.46	53.62	.022	1.351 0249	2395	76.27 53.00	53.44
.023	1.301 1739	2500	74.55 88.15	53.56	.023	1.351 0767	2393	76.31 51.00	53.39
.024	1.301 1778	2497	74.56 87.85	53.51	.024	1.351 0285	2390	76.35 49.00	53.34
2.025	1.301 1817	2495	74.57 87.50	53.45	2.075	1.361 0804	2370	76.47 47.11	53.28
.025	1.301 1856	2493	74.58 87.18	53.40	.025	1.361 0322	2368	76.51 45.00	53.23
.026	1.301 1895	2491	74.59 86.88	53.34	.026	1.361 0840	2365	76.55 43.00	53.18
.027	1.301 1934	2489	74.59 86.58	53.29	.027	1.361 0358	2363	76.59 41.00	53.13
.028	1.301 1973	2487	74.60 86.29	53.23	.028	1.361 0876	2360	76.63 39.00	53.08
.029	1.301 2012	2485	74.61 85.95	53.17	.029	1.361 0394	2358	76.67 37.00	53.03
2.030	1.301 2051	2484	74.62 85.51	53.12	2.080	1.371 0913	2338	76.79 35.11	52.97
.031	1.301 2090	2482	74.63 85.28	53.06	.031	1.371 0431	2335	76.83 33.00	52.92
.032	1.301 2129	2480	74.64 85.00	53.00	.032	1.371 0949	2333	76.87 31.00	52.87
.033	1.301 2168	2478	74.65 84.69	52.94	.033	1.371 0467	2330	76.91 29.00	52.82
.034	1.301 2207	2476	74.65 84.47	52.88	.034	1.371 0985	2328	76.95 27.00	52.77
2.035	1.301 2246	2475	74.66 84.20	52.82	2.085	1.381 0504	2308	77.07 25.11	52.71
.035	1.301 2285	2473	74.67 83.88	52.76	.035	1.381 0522	2305	77.11 23.00	52.66
.036	1.301 2324	2471	74.68 83.58	52.70	.036	1.381 0540	2303	77.15 21.00	52.61
.037	1.301 2363	2469	74.69 83.29	52.64	.037	1.381 0558	2300	77.19 19.00	52.56
.038	1.301 2402	2467	74.70 83.00	52.58	.038	1.381 0576	2298	77.23 17.00	52.51
.039	1.301 2441	2465	74.71 82.71	52.52	.039	1.381 0594	2295	77.27 15.00	52.46
2.040	1.301 2480	2464	74.72 82.39	52.46	2.090	1.391 0613	2275	77.39 13.11	52.40
.041	1.301 2519	2462	74.73 82.11	52.40	.041	1.391 0631	2273	77.43 11.00	52.35
.042	1.301 2558	2460	74.74 81.83	52.34	.042	1.391 0649	2270	77.47 9.00	52.30
.043	1.301 2597	2458	74.75 81.56	52.28	.043	1.391 0667	2268	77.51 7.00	52.25
.044	1.301 2636	2456	74.76 81.29	52.22	.044	1.391 0685	2265	77.55 5.00	52.20
2.045	1.301 2675	2455	74.77 81.00	52.16	2.095	1.401 0704	2245	77.67 3.11	52.14
.045	1.301 2714	2453	74.78 80.73	52.10	.045	1.401 0722	2243	77.71 1.00	52.09
.046	1.301 2753	2451	74.79 80.46	52.04	.046	1.401 0740	2240	77.75 0.00	52.04
.047	1.301 2792	2449	74.80 80.19	51.98	.047	1.401 0758	2238	77.79 0.00	51.99
.048	1.301 2831	2447	74.81 79.92	51.92	.048	1.401 0776	2235	77.83 0.00	51.94
.049	1.301 2870	2445	74.82 79.65	51.86	.049	1.401 0794	2233	77.87 0.00	51.89
2.050	1.301 2909	2444	74.83 79.38	51.80	2.100	1.411 0813	2213	77.99 0.00	51.83

IAN TABLE

The Gudermannian.

u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$	u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$
2.100	1.317 0000	.4113	76.02 13.36	.40.77	2.150	1.338 8732	.2268	76.42 42.42	47.41
.001	.317 0000	.4114	76.03 03.11	40.74	.151	.339 1020	.2266	76.43 20.81	47.39
.002	.317 0000	.4115	76.03 52.86	40.70	.152	.339 3325	.2264	76.44 17.15	47.37
.003	.317 0000	.4116	76.04 42.61	40.66	.153	.339 5630	.2262	76.45 04.44	47.37
.004	.317 0000	.4117	76.05 32.36	40.63	.154	.339 7935	.2260	76.45 51.69	47.23
2.105	1.318 0000	.4118	76.06 22.11	40.59	2.155	1.340 0367	.2257	76.46 38.80	47.18
.005	.318 0000	.4119	76.07 11.86	40.56	.155	.340 2681	.2255	76.47 26.05	47.13
.006	.318 0000	.4120	76.08 00.61	40.52	.157	.340 4995	.2253	76.48 13.26	47.09
.007	.318 0000	.4121	76.08 49.36	40.49	.158	.340 7309	.2251	76.49 00.23	47.04
.008	.318 0000	.4122	76.09 39.11	40.44	.159	.340 9623	.2248	76.49 47.25	47.00
2.110	1.319 0000	.4123	76.10 28.86	40.40	2.160	1.341 1665	.2246	76.50 34.22	46.95
.011	.319 0000	.4124	76.11 17.62	40.34	.161	.341 3881	.2244	76.51 21.15	46.90
.012	.319 0000	.4125	76.12 07.37	40.30	.162	.341 6153	.2242	76.52 08.03	46.86
.013	.319 0000	.4126	76.12 57.12	40.25	.163	.341 8424	.2240	76.52 54.87	46.81
.014	.319 0000	.4127	76.13 46.87	40.20	.164	.342 0695	.2237	76.53 41.66	46.77
2.115	1.320 0000	.4128	76.14 36.62	40.15	2.165	1.342 2959	.2235	76.54 28.40	46.72
.016	.320 0000	.4129	76.15 26.37	40.09	.166	.342 5223	.2233	76.55 15.10	46.68
.017	.320 0000	.4130	76.16 16.12	40.06	.167	.342 7486	.2231	76.56 01.76	46.63
.018	.320 0000	.4131	76.17 05.87	40.01	.168	.342 9744	.2229	76.56 48.36	46.59
.019	.320 0000	.4132	76.17 55.62	39.96	.169	.343 2002	.2226	76.57 34.93	46.54
2.120	1.321 0000	.4133	76.18 45.37	39.91	2.170	1.343 4257	.2224	76.58 21.45	46.50
.021	.321 0000	.4134	76.19 35.12	39.87	.171	.343 6510	.2222	76.59 07.92	46.45
.022	.321 0000	.4135	76.20 24.87	39.82	.172	.343 8761	.2220	76.59 54.35	46.41
.023	.321 0000	.4136	76.21 14.62	39.77	.173	.344 1010	.2218	76.60 40.73	46.36
.024	.321 0000	.4137	76.22 04.37	39.72	.174	.344 3256	.2215	76.61 27.07	46.31
2.125	1.322 0000	.4138	76.22 54.12	39.68	2.175	1.344 5501	.2213	76.62 13.46	46.27
.026	.322 0000	.4139	76.23 43.87	39.63	.176	.344 7743	.2211	76.62 59.81	46.23
.027	.322 0000	.4140	76.24 33.62	39.58	.177	.344 9983	.2209	76.63 46.16	46.18
.028	.322 0000	.4141	76.25 23.37	39.54	.178	.345 2220	.2207	76.64 32.46	46.13
.029	.322 0000	.4142	76.26 13.12	39.49	.179	.345 4456	.2204	76.65 18.68	46.09
2.130	1.323 0000	.4143	76.27 02.87	39.44	2.180	1.345 6689	.2202	76.66 04.94	46.04
.031	.323 0000	.4144	76.27 52.62	39.40	.181	.345 8921	.2200	76.66 51.17	46.00
.032	.323 0000	.4145	76.28 42.37	39.35	.182	.346 1159	.2198	76.67 37.31	45.95
.033	.323 0000	.4146	76.29 32.12	39.30	.183	.346 3397	.2196	76.68 23.48	45.91
.034	.323 0000	.4147	76.30 21.87	39.25	.184	.346 5630	.2194	76.69 09.56	45.87
2.135	1.324 0000	.4148	76.31 11.62	39.21	2.185	1.346 7851	.2192	76.69 55.81	45.82
.036	.324 0000	.4149	76.32 01.37	39.16	.186	.347 0084	.2190	76.70 42.00	45.78
.037	.324 0000	.4150	76.32 51.12	39.11	.187	.347 2316	.2187	76.71 28.15	45.73
.038	.324 0000	.4151	76.33 40.87	39.07	.188	.347 4548	.2185	76.72 14.27	45.69
.039	.324 0000	.4152	76.34 30.62	39.02	.189	.347 6779	.2183	76.73 00.33	45.64
2.140	1.325 0000	.4153	76.35 20.37	38.97	2.190	1.347 8991	.2181	76.73 46.35	45.60
.041	.325 0000	.4154	76.36 10.12	38.93	.191	.348 1214	.2178	76.74 32.31	45.55
.042	.325 0000	.4155	76.37 00.12	38.88	.192	.348 3436	.2176	76.75 18.26	45.51
.043	.325 0000	.4156	76.37 50.12	38.84	.193	.348 5658	.2174	76.76 04.19	45.46
.044	.325 0000	.4157	76.38 40.12	38.79	.194	.348 7879	.2172	76.76 50.11	45.42
2.145	1.326 0000	.4158	76.39 30.12	38.74	2.195	1.348 9991	.2170	76.77 36.00	45.38
.046	.326 0000	.4159	76.40 20.12	38.70	.196	.349 2213	.2168	76.78 21.84	45.33
.047	.326 0000	.4160	76.41 10.12	38.65	.197	.349 4435	.2166	76.79 07.69	45.29
.048	.326 0000	.4161	76.42 00.12	38.61	.198	.349 6657	.2164	76.79 53.52	45.24
.049	.326 0000	.4162	76.42 50.12	38.56	.199	.349 8879	.2162	76.80 39.31	45.20
2.150	1.327 0000	.4163	76.43 40.12	38.51	2.200	1.350 0991	.2160	76.81 25.11	45.16

BRITISHIAN TABLE

The Godermannian.

u	gdu	+62	gdu	+62	u	gdu	+62	gdu	+62
2.200	1.350 0003	2180	77 31 10.11	45.10	2.230	1.350 77.13	2055	77 57 19.03	43.00
2.201	1.351 0004	2182	77 32 10.25	45.13	2.231	1.351 0007	2056	77 58 19.17	43.03
2.202	1.352 0005	2184	77 33 10.39	45.16	2.232	1.352 0010	2057	77 59 19.31	43.06
2.203	1.353 0006	2186	77 34 10.53	45.19	2.233	1.353 0013	2058	78 00 19.45	43.09
2.204	1.354 0007	2188	77 35 10.67	45.22	2.234	1.354 0016	2059	78 01 19.59	43.12
2.205	1.355 0008	2190	77 36 10.81	45.25	2.235	1.355 0019	2060	78 02 20.13	43.15
2.206	1.356 0009	2192	77 37 10.95	45.28	2.236	1.356 0022	2061	78 03 20.27	43.18
2.207	1.357 0010	2194	77 38 11.09	45.31	2.237	1.357 0025	2062	78 04 20.41	43.21
2.208	1.358 0011	2196	77 39 11.23	45.34	2.238	1.358 0028	2063	78 05 20.55	43.24
2.209	1.359 0012	2198	77 40 11.37	45.37	2.239	1.359 0031	2064	78 06 21.09	43.27
2.210	1.360 0013	2200	77 41 11.51	45.40	2.240	1.360 0034	2065	78 07 21.23	43.30
2.211	1.361 0014	2202	77 42 11.65	45.43	2.241	1.361 0037	2066	78 08 21.37	43.33
2.212	1.362 0015	2204	77 43 11.79	45.46	2.242	1.362 0040	2067	78 09 21.51	43.36
2.213	1.363 0016	2206	77 44 11.93	45.49	2.243	1.363 0043	2068	78 10 22.05	43.39
2.214	1.364 0017	2208	77 45 12.07	45.52	2.244	1.364 0046	2069	78 11 22.19	43.42
2.215	1.365 0018	2210	77 46 12.21	45.55	2.245	1.365 0049	2070	78 12 22.33	43.45
2.216	1.366 0019	2212	77 47 12.35	45.58	2.246	1.366 0052	2071	78 13 22.47	43.48
2.217	1.367 0020	2214	77 48 12.49	46.01	2.247	1.367 0055	2072	78 14 22.61	43.51
2.218	1.368 0021	2216	77 49 12.63	46.04	2.248	1.368 0058	2073	78 15 22.75	43.54
2.219	1.369 0022	2218	77 50 12.77	46.07	2.249	1.369 0101	2074	78 16 22.89	43.57
2.220	1.370 0023	2220	77 51 12.91	46.10	2.250	1.370 0104	2075	78 17 23.03	43.60
2.221	1.371 0024	2222	77 52 13.05	46.13	2.251	1.371 0107	2076	78 18 23.17	43.63
2.222	1.372 0025	2224	77 53 13.19	46.16	2.252	1.372 0110	2077	78 19 23.31	43.66
2.223	1.373 0026	2226	77 54 13.33	46.19	2.253	1.373 0113	2078	78 20 23.45	43.69
2.224	1.374 0027	2228	77 55 13.47	46.22	2.254	1.374 0116	2079	78 21 23.59	43.72
2.225	1.375 0028	2230	77 56 13.61	46.25	2.255	1.375 0119	2080	78 22 24.13	43.75
2.226	1.376 0029	2232	77 57 13.75	46.28	2.256	1.376 0122	2081	78 23 24.27	43.78
2.227	1.377 0030	2234	77 58 13.89	46.31	2.257	1.377 0125	2082	78 24 24.41	43.81
2.228	1.378 0031	2236	77 59 14.03	46.34	2.258	1.378 0128	2083	78 25 24.55	43.84
2.229	1.379 0032	2238	77 60 14.17	46.37	2.259	1.379 0131	2084	78 26 25.09	43.87
2.230	1.380 0033	2240	77 61 14.31	46.40	2.260	1.380 0134	2085	78 27 25.23	43.90
2.231	1.381 0034	2242	77 62 14.45	46.43	2.261	1.381 0137	2086	78 28 25.37	43.93
2.232	1.382 0035	2244	77 63 14.59	46.46	2.262	1.382 0140	2087	78 29 25.51	43.96
2.233	1.383 0036	2246	77 64 14.73	46.49	2.263	1.383 0143	2088	78 30 25.65	43.99
2.234	1.384 0037	2248	77 65 14.87	46.52	2.264	1.384 0146	2089	78 31 25.79	44.02
2.235	1.385 0038	2250	77 66 15.01	46.55	2.265	1.385 0149	2090	78 32 25.93	44.05
2.236	1.386 0039	2252	77 67 15.15	46.58	2.266	1.386 0152	2091	78 33 26.07	44.08
2.237	1.387 0040	2254	77 68 15.29	46.61	2.267	1.387 0155	2092	78 34 26.21	44.11
2.238	1.388 0041	2256	77 69 15.43	46.64	2.268	1.388 0158	2093	78 35 26.35	44.14
2.239	1.389 0042	2258	77 70 15.57	46.67	2.269	1.389 0161	2094	78 36 26.49	44.17
2.240	1.390 0043	2260	77 71 15.71	46.70	2.270	1.390 0164	2095	78 37 26.63	44.20
2.241	1.391 0044	2262	77 72 15.85	46.73	2.271	1.391 0167	2096	78 38 26.77	44.23
2.242	1.392 0045	2264	77 73 15.99	46.76	2.272	1.392 0170	2097	78 39 26.91	44.26
2.243	1.393 0046	2266	77 74 16.13	46.79	2.273	1.393 0173	2098	78 40 27.05	44.29
2.244	1.394 0047	2268	77 75 16.27	46.82	2.274	1.394 0176	2099	78 41 27.19	44.32
2.245	1.395 0048	2270	77 76 16.41	46.85	2.275	1.395 0179	2100	78 42 27.33	44.35
2.246	1.396 0049	2272	77 77 16.55	46.88	2.276	1.396 0182	2101	78 43 27.47	44.38
2.247	1.397 0050	2274	77 78 16.69	46.91	2.277	1.397 0185	2102	78 44 27.61	44.41
2.248	1.398 0051	2276	77 79 16.83	46.94	2.278	1.398 0188	2103	78 45 27.75	44.44
2.249	1.399 0052	2278	77 80 16.97	46.97	2.279	1.399 0191	2104	78 46 27.89	44.47
2.250	1.400 0053	2280	77 81 17.11	47.00	2.280	1.400 0194	2105	78 47 28.03	44.50
2.251	1.401 0054	2282	77 82 17.25	47.03	2.281	1.401 0197	2106	78 48 28.17	44.53
2.252	1.402 0055	2284	77 83 17.39	47.06	2.282	1.402 0200	2107	78 49 28.31	44.56
2.253	1.403 0056	2286	77 84 17.53	47.09	2.283	1.403 0203	2108	78 50 28.45	44.59
2.254	1.404 0057	2288	77 85 17.67	47.12	2.284	1.404 0206	2109	78 51 28.59	44.62
2.255	1.405 0058	2290	77 86 17.81	47.15	2.285	1.405 0209	2110	78 52 28.73	44.65
2.256	1.406 0059	2292	77 87 17.95	47.18	2.286	1.406 0212	2111	78 53 28.87	44.68
2.257	1.407 0060	2294	77 88 18.09	47.21	2.287	1.407 0215	2112	78 54 29.01	44.71
2.258	1.408 0061	2296	77 89 18.23	47.24	2.288	1.408 0218	2113	78 55 29.15	44.74
2.259	1.409 0062	2298	77 90 18.37	47.27	2.289	1.409 0221	2114	78 56 29.29	44.77
2.260	1.410 0063	2300	77 91 18.51	47.30	2.290	1.410 0224	2115	78 57 29.43	44.80
2.261	1.411 0064	2302	77 92 18.65	47.33	2.291	1.411 0227	2116	78 58 29.57	44.83
2.262	1.412 0065	2304	77 93 18.79	47.36	2.292	1.412 0230	2117	78 59 29.71	44.86
2.263	1.413 0066	2306	77 94 18.93	47.39	2.293	1.413 0233	2118	79 00 29.85	44.89
2.264	1.414 0067	2308	77 95 19.07	47.42	2.294	1.414 0236	2119	79 01 30.00	44.92
2.265	1.415 0068	2310	77 96 19.21	47.45	2.295	1.415 0239	2120	79 02 30.14	44.95
2.266	1.416 0069	2312	77 97 19.35	47.48	2.296	1.416 0242	2121	79 03 30.28	44.98
2.267	1.417 0070	2314	77 98 19.49	47.51	2.297	1.417 0245	2122	79 04 30.42	45.01
2.268	1.418 0071	2316	77 99 19.63	47.54	2.298	1.418 0248	2123	79 05 30.56	45.04
2.269	1.419 0072	2318	77 100 19.77	47.57	2.299	1.419 0251	2124	79 06 30.70	45.07
2.270	1.420 0073	2320	77 101 19.91	47.60	2.300	1.420 0254	2125	79 07 30.84	45.10
2.271	1.421 0074	2322	77 102 20.05	47.63	2.301	1.421 0257	2126	79 08 30.98	45.13
2.272	1.422 0075	2324	77 103 20.19	47.66	2.302	1.422 0260	2127	79 09 31.12	45.16
2.273	1.423 0076	2326	77 104 20.33	47.69	2.303	1.423 0263	2128	79 10 31.26	45.19
2.274	1.424 0077	2328	77 105 20.47	47.72	2.304	1.424 0266	2129	79 11 31.40	45.22
2.275	1.425 0078	2330	77 106 20.61	47.75	2.305	1.425 0269	2130	79 12 31.54	45.25
2.276	1.426 0079	2332	77 107 20.75	47.78	2.306	1.426 0272	2131	79 13 31.68	45.28
2.277	1.427 0080	2334	77 108 20.89	47.81	2.307	1.427 0275	2132	79 14 31.82	45.31
2.278	1.428 0081	2336	77 109 21.03	47.84	2.308	1.428 0278	2133	79 15 31.96	45.34
2.279	1.429 0082	2338	77 110 21.17	47.87	2.309	1.429 0281	2134	79 16 32.10	45.37
2.280	1.430 0083	2340	77 111 21.31	47.90	2.310	1.430 0284	2135	79 17 32.24	45.40
2.281	1.431 0084	2342	77 112 21.45	47.93	2.311	1.431 0287	2136	79 18 32.38	45.43
2.282	1.432 0085	2344	77 113 21.59	47.96	2.312	1.432 0290	2137	79 19 32.52	45.46
2.283	1.433 0086	2346	77 114 21.73	47.99	2.313	1.433 0293	2138	79 20 32.66	45.49
2.284	1.434 0087	2348	77 115 21.87	48.02	2.314	1.434 0296	2139	79 21 32.80	45.52
2.285	1.435 0088	2350	77 116 22.01	48.05	2.315	1.435 0299	2140	79 22 32.94	45.55
2.286	1.436 0089	2352	77 117 22.15	48.08	2.316	1.436 0302	2141	79 23 33.08	45.58
2.287	1.437 0090	2354	77 118 22.29	48.11	2.317	1.437 0305	2142	79 24 33.22	45.61
2.288	1.438 0091	2356	77 119 22.43	48.14	2.318	1.438 0308	2143	79 25 33.36	45.64
2.289	1.439 0092	2358	77 120 22.57	48.17	2.319	1.439 0311	2144	79 26 33.50	45.67
2.290	1.440 0093	2360	77 121 22.71	48.20	2.320	1.440 0314	2145	79 27 33.64	45.70
2.291	1.441 0094	2362	77 122 22.85	48.23	2.321	1.441 0317	2146	79 28 33.78	45.73
2.292	1.442 0095	2364	77 123 22.99	48.26	2.322	1.442 0320	2147	79 29 33.92	45.76
2.293	1.443 0096	2366	77 124 23.13	48.29	2.323	1.443 0323	2148	79 30 34.06	45.79
2.294	1.444 0097	2368	77 125 23.27	48.32	2.324	1.444 0326	2149	79 31 34.20	45.82
2.295	1.445 0098	2370	77 126 23.41	48.35	2.325	1.445 0329	2150	79 32 34.34	45.85
2.296	1.446 0099	2372	77 127 23.55	48.38	2.326	1.446 0332	2151	79 33 34.48	

The Gudermannian.

x	$\sin x$	$\cos x$	$\tan x$	$\cot x$	x	$\sin x$	$\cos x$	$\tan x$	$\cot x$
3.390	1.320 9966	1065	28.32 54.01	40.45	2.370	1.360 6731	1890	79 06 16.03	38.00
3.391	1.321 1319	1064	28.33 38.01	40.41	3.381	1.360 8221	1888	79 06 55.00	38.06
3.392	1.321 3311	1063	28.34 16.82	40.37	3.392	1.361 0108	1885	79 07 33.03	38.09
3.393	1.321 5164	1062	28.35 00.07	40.33	3.393	1.361 1994	1885	79 08 12.82	38.17
3.394	1.321 7599	1061	28.35 41.48	40.29	3.394	1.361 3877	1883	79 08 51.67	38.24
3.395	1.321 9699	1060	28.36 22.25	40.25	2.395	1.361 5759	1881	79 09 30.49	38.30
3.396	1.322 1311	1059	28.37 02.68	40.21	3.396	1.361 7639	1879	79 10 09.27	38.36
3.397	1.322 3511	1058	28.37 43.66	40.16	3.397	1.361 9517	1877	79 10 48.04	38.39
3.398	1.322 5411	1057	28.38 24.31	40.13	3.398	1.362 1394	1875	79 11 26.71	38.48
3.399	1.322 7553	1056	28.39 04.62	40.09	3.399	1.362 3268	1874	79 12 05.37	38.54
3.400	1.322 9450	1055	28.39 45.49	40.05	2.400	1.362 5141	1872	79 12 44.00	38.61
3.401	1.323 1105	1054	28.40 26.02	40.01	3.401	1.362 7012	1870	79 13 22.59	38.57
3.402	1.323 3105	1053	28.41 06.51	40.07	3.402	1.362 8881	1868	79 14 01.14	38.53
3.403	1.323 5100	1052	28.41 46.06	40.03	3.403	1.363 0748	1866	79 14 39.68	38.49
3.404	1.323 7085	1051	28.42 27.37	40.00	3.404	1.363 2613	1864	79 15 18.12	38.46
3.405	1.323 9055	1050	28.43 07.71	40.05	2.405	1.363 4476	1861	79 15 56.55	38.42
3.406	1.324 0980	1049	28.43 48.07	40.01	3.406	1.363 6338	1860	79 16 34.96	38.38
3.407	1.324 2911	1048	28.44 28.36	40.07	3.407	1.363 8198	1859	79 17 13.32	38.34
3.408	1.324 4835	1047	28.45 08.61	40.03	3.408	1.364 0056	1857	79 17 51.54	38.30
3.409	1.324 6815	1046	28.45 48.82	40.00	3.409	1.364 1912	1855	79 18 29.93	38.27
3.410	1.324 8782	1045	28.46 28.99	40.05	2.410	1.364 3766	1853	79 19 08.18	38.23
3.411	1.325 0743	1044	28.47 09.13	40.01	3.411	1.364 5619	1852	79 19 46.30	38.19
3.412	1.325 2703	1043	28.47 49.22	40.07	3.412	1.364 7470	1850	79 20 24.36	38.15
3.413	1.325 4644	1042	28.48 29.28	40.03	3.413	1.364 9318	1848	79 21 02.70	38.12
3.414	1.325 6584	1041	28.49 09.29	40.00	3.414	1.365 1165	1846	79 21 40.80	38.08
3.415	1.325 8515	1040	28.49 49.27	39.96	2.415	1.365 3011	1844	79 22 18.86	38.04
3.416	1.326 0435	1039	28.50 29.21	39.92	3.416	1.365 4854	1843	79 22 56.88	38.00
3.417	1.326 2355	1038	28.51 09.10	39.88	3.417	1.365 6696	1841	79 23 34.87	37.97
3.418	1.326 4265	1037	28.51 48.95	39.84	3.418	1.365 8536	1839	79 24 12.81	37.93
3.419	1.326 6175	1036	28.52 28.76	39.80	3.419	1.366 0374	1837	79 24 50.73	37.89
3.420	1.326 8084	1035	28.53 08.55	39.76	2.420	1.366 2210	1835	79 25 28.60	37.86
3.421	1.327 0001	1034	28.53 48.30	39.72	3.421	1.366 4044	1833	79 26 06.44	37.82
3.422	1.327 1918	1033	28.54 28.01	39.68	3.422	1.366 5877	1832	79 26 44.21	37.78
3.423	1.327 3829	1032	28.55 07.67	39.64	3.423	1.366 7708	1830	79 27 22.00	37.74
3.424	1.327 5739	1031	28.55 47.29	39.60	3.424	1.366 9537	1828	79 27 59.73	37.71
3.425	1.327 7649	1030	28.56 26.88	39.57	2.425	1.367 1363	1826	79 28 37.41	37.67
3.426	1.327 9559	1029	28.57 06.43	39.53	3.426	1.367 3189	1824	79 29 15.07	37.63
3.427	1.328 1461	1028	28.57 45.94	39.49	3.427	1.367 5013	1823	79 30 52.68	37.60
3.428	1.328 3353	1027	28.58 25.40	39.45	3.428	1.367 6834	1821	79 31 30.26	37.56
3.429	1.328 5247	1026	28.59 04.84	39.41	3.429	1.367 8653	1819	79 32 07.80	37.52
3.430	1.328 7136	1025	28.59 44.23	39.37	2.430	1.368 0473	1817	79 32 45.30	37.49
3.431	1.328 9024	1024	28.60 23.58	39.33	3.431	1.368 2289	1816	79 33 22.77	37.45
3.432	1.329 1100	1023	28.61 02.80	39.29	3.432	1.368 4101	1814	79 34 00.20	37.41
3.433	1.329 3051	1022	28.61 42.07	39.25	3.433	1.368 5917	1812	79 34 37.59	37.37
3.434	1.329 4997	1021	28.62 21.41	39.21	3.434	1.368 7728	1810	79 35 14.95	37.34
3.435	1.329 6937	1020	28.63 00.61	39.18	2.435	1.368 9537	1808	79 35 52.27	37.30
3.436	1.329 8875	1019	28.63 39.77	39.14	3.436	1.369 1345	1807	79 36 29.55	37.26
3.437	1.330 0812	1018	28.64 18.88	39.10	3.437	1.369 3150	1805	79 37 06.80	37.23
3.438	1.330 2747	1017	28.64 57.97	39.06	3.438	1.369 4954	1803	79 37 44.01	37.19
3.439	1.330 4680	1016	28.65 37.02	39.03	3.439	1.369 6757	1801	79 38 21.18	37.15
3.440	1.330 6611	1015	28.66 16.03	38.99	2.440	1.369 8557	1800	79 39 08.32	37.12
x	$2 \tan^{-1} \frac{e^x - 1}{e^x + 1}$	$\operatorname{sech} x$	$2 \tan^{-1} \frac{e^x + 1}{e^x - 1}$	$\operatorname{sech} x$	x	$2 \tan^{-1} \frac{e^x - 1}{e^x + 1}$	$\operatorname{sech} x$	$2 \tan^{-1} \frac{e^x + 1}{e^x - 1}$	$\operatorname{sech} x$

The Gulvernmanian.

u	gls	uF2	gls	uF2	u	gls	uF2	gls	uF2
2.400	1.389 8657	1780	79.47 58.34	37.12	2.470	1.395 6199	1781	80.08 49.31	35.34
-001	1.391 8295	1781	79.48 58.44	37.08	-001	1.397 5840	1782	80.08 49.41	35.30
-002	1.393 8153	1782	79.49 58.48	37.05	-002	1.398 5729	1783	80.09 49.46	35.27
-003	1.395 8038	1783	79.49 58.51	37.01	-003	1.399 5635	1784	80.10 49.46	35.24
-004	1.397 5741	1784	79.49 58.59	36.97	-004	1.399 5505	1785	80.10 49.47	35.20
2.405	1.399 7533	1785	79.41 58.45	36.91	2.455	1.399 6901	1786	80.11 49.55	35.16
-006	1.399 6943	1786	79.41 49.37	36.86	-006	1.399 6805	1787	80.11 49.59	35.13
-007	1.398 6111	1787	79.42 47.35	36.80	-007	1.398 6107	1788	80.12 49.59	35.09
-008	1.398 5817	1788	79.42 58.40	36.83	-008	1.398 5607	1789	80.12 49.59	35.06
-009	1.398 4181	1789	79.43 59.01	36.79	-009	1.398 4706	1790	80.13 49.59	35.02
2.410	1.398 6161	1792	79.44 59.08	36.75	2.460	1.398 3103	1791	80.14 49.59	34.99
-011	1.398 8245	1793	79.44 44.42	36.72	-011	1.398 2800	1792	80.14 49.59	34.95
-012	1.397 8045	1794	79.45 47.12	36.68	-012	1.398 1594	1793	80.15 49.59	34.92
-013	1.398 5862	1797	79.45 57.58	36.65	-013	1.398 8165	1794	80.15 49.59	34.89
-014	1.397 3858	1795	79.46 51.41	36.61	-014	1.398 0175	1795	80.16 49.59	34.85
2.415	1.394 5152	1771	79.47 41.00	36.57	2.465	1.391 1841	1786	80.16 55.45	34.82
-016	1.393 7143	1772	79.47 47.50	36.51	-016	1.391 3551	1787	80.17 55.45	34.78
-017	1.392 8545	1773	79.48 41.08	36.49	-017	1.391 5547	1788	80.18 55.45	34.75
-018	1.393 6664	1776	79.49 46.57	36.47	-018	1.391 6041	1791	80.18 55.45	34.71
-019	1.393 5431	1780	79.49 37.02	36.43	-019	1.391 8403	1794	80.19 55.45	34.68
2.420	1.393 4166	1784	79.50 13.41	36.39	2.470	1.392 0683	1786	80.19 49.59	34.65
-021	1.393 3900	1785	79.50 49.36	36.35	-021	1.392 1682	1787	80.19 55.45	34.61
-022	1.393 7722	1791	79.51 36.15	36.32	-022	1.392 1600	1790	80.19 55.45	34.58
-023	1.393 0182	1794	79.52 42.45	36.30	-023	1.392 5115	1795	80.20 49.59	34.54
-024	1.391 1440	1798	79.52 38.72	36.25	-024	1.392 6691	1797	80.20 49.59	34.51
2.425	1.394 2097	1796	79.53 41.06	36.21	2.475	1.392 3954	1792	80.20 49.59	34.48
-026	1.394 4251	1751	79.53 51.15	36.18	-026	1.392 0132	1793	80.21 49.59	34.44
-027	1.393 6993	1754	79.54 27.32	36.14	-027	1.392 2001	1794	80.21 49.59	34.41
-028	1.393 8257	1751	79.55 03.44	36.11	-028	1.392 3968	1796	80.21 49.59	34.37
-029	1.395 0006	1749	79.55 39.51	36.07	-029	1.392 5341	1798	80.21 49.59	34.34
2.430	1.395 1751	1747	79.56 15.30	36.04	2.481	1.393 6048	1791	80.25 49.59	34.31
-031	1.395 3301	1745	79.56 51.61	36.00	-031	1.393 8960	1792	80.26 49.59	34.27
-032	1.395 5245	1741	79.57 27.64	35.97	-032	1.391 0141	1793	80.26 49.59	34.24
-033	1.395 6688	1742	79.58 03.55	35.93	-033	1.394 1060	1795	80.27 49.59	34.20
-034	1.395 1949	1741	79.58 39.46	35.89	-034	1.391 3007	1797	80.27 49.59	34.17
2.435	1.396 0160	1739	79.59 15.34	35.86	2.485	1.394 5303	1795	80.28 49.59	34.14
-036	1.396 2307	1737	79.59 51.49	35.83	-036	1.394 6907	1791	80.28 49.59	34.10
-037	1.396 3943	1735	79.60 26.50	35.79	-037	1.394 3900	1792	80.29 49.59	34.07
-038	1.396 5977	1734	79.60 03.77	35.76	-038	1.395 0251	1793	80.29 49.59	34.04
-039	1.397 7110	1732	79.60 38.51	35.72	-039	1.395 1900	1794	80.29 49.59	34.00
2.440	1.396 9341	1730	79.60 14.21	35.69	2.490	1.395 4548	1797	80.31 49.59	33.97
-041	1.397 1870	1728	79.60 49.88	35.65	-041	1.395 5103	1795	80.31 49.59	33.94
-042	1.397 4507	1727	79.61 25.51	35.62	-042	1.395 6218	1794	80.31 49.59	33.90
-043	1.397 1343	1725	79.61 01.11	35.58	-043	1.395 8351	1792	80.32 49.59	33.87
-044	1.397 6047	1723	79.61 36.07	35.54	-044	1.395 0141	1791	80.33 49.59	33.84
2.445	1.397 7770	1722	79.62 12.20	35.51	2.495	1.396 1764	1790	80.31 49.59	33.80
-046	1.397 9100	1720	79.62 47.69	35.48	-046	1.396 3300	1797	80.31 49.59	33.77
-047	1.398 1290	1718	79.62 23.15	35.44	-047	1.396 5010	1795	80.35 49.59	33.74
-048	1.398 2027	1716	79.62 08.57	35.41	-048	1.396 6761	1794	80.35 49.59	33.70
-049	1.398 4644	1715	79.62 33.99	35.37	-049	1.396 8301	1792	80.36 49.59	33.67
2.450	1.398 6361	1713	80.08 09.31	35.34	2.500	1.400 0146	1791	80.36 53.46	33.64
u	21m 49m 30"	u	21m 49m 30"	u	u	21m 49m 30"	u	21m 49m 30"	u

BRITISHMAN TABLE

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
2.500	1.000 0000	0.00	80.36 53.26	33.63	2.550	1.000 0000	1552	81.04 14.22	32.02
2.501	1.000 0000	0.00	80.37 53.88	33.60	2.551	1.000 0000	1553	81.05 14.22	31.98
2.502	1.000 0000	0.00	80.38 54.50	33.57	2.552	1.000 0000	1554	81.06 14.22	31.95
2.503	1.000 0000	0.00	80.39 55.12	33.54	2.553	1.000 0000	1555	81.07 14.22	31.92
2.504	1.000 0000	0.00	80.40 55.74	33.51	2.554	1.000 0000	1556	81.08 14.22	31.89
2.505	1.000 0000	0.00	80.41 56.36	33.47	2.555	1.000 0000	1557	81.09 14.22	31.85
2.506	1.000 0000	0.00	80.42 56.98	33.44	2.556	1.000 0000	1558	81.10 14.22	31.82
2.507	1.000 0000	0.00	80.43 57.60	33.40	2.557	1.000 0000	1559	81.11 14.22	31.79
2.508	1.000 0000	0.00	80.44 58.22	33.37	2.558	1.000 0000	1560	81.12 14.22	31.76
2.509	1.000 0000	0.00	80.45 58.84	33.34	2.559	1.000 0000	1561	81.13 14.22	31.73
2.510	1.000 0000	0.00	80.46 59.46	33.31	2.560	1.000 0000	1562	81.14 14.22	31.70
2.511	1.000 0000	0.00	80.47 60.08	33.27	2.561	1.000 0000	1563	81.15 14.22	31.67
2.512	1.000 0000	0.00	80.48 60.70	33.24	2.562	1.000 0000	1564	81.16 14.22	31.64
2.513	1.000 0000	0.00	80.49 61.32	33.21	2.563	1.000 0000	1565	81.17 14.22	31.61
2.514	1.000 0000	0.00	80.50 61.94	33.17	2.564	1.000 0000	1566	81.18 14.22	31.58
2.515	1.000 0000	0.00	80.51 62.56	33.14	2.565	1.000 0000	1567	81.19 14.22	31.55
2.516	1.000 0000	0.00	80.52 63.18	33.11	2.566	1.000 0000	1568	81.20 14.22	31.52
2.517	1.000 0000	0.00	80.53 63.80	33.08	2.567	1.000 0000	1569	81.21 14.22	31.49
2.518	1.000 0000	0.00	80.54 64.42	33.04	2.568	1.000 0000	1570	81.22 14.22	31.46
2.519	1.000 0000	0.00	80.55 65.04	33.01	2.569	1.000 0000	1571	81.23 14.22	31.43
2.520	1.000 0000	0.00	80.56 65.66	32.98	2.570	1.000 0000	1572	81.24 14.22	31.40
2.521	1.000 0000	0.00	80.57 66.28	32.95	2.571	1.000 0000	1573	81.25 14.22	31.37
2.522	1.000 0000	0.00	80.58 66.90	32.91	2.572	1.000 0000	1574	81.26 14.22	31.34
2.523	1.000 0000	0.00	80.59 67.52	32.88	2.573	1.000 0000	1575	81.27 14.22	31.31
2.524	1.000 0000	0.00	80.60 68.14	32.85	2.574	1.000 0000	1576	81.28 14.22	31.27
2.525	1.000 0000	0.00	80.61 68.76	32.81	2.575	1.000 0000	1577	81.29 14.22	31.24
2.526	1.000 0000	0.00	80.62 69.38	32.78	2.576	1.000 0000	1578	81.30 14.22	31.21
2.527	1.000 0000	0.00	80.63 70.00	32.75	2.577	1.000 0000	1579	81.31 14.22	31.18
2.528	1.000 0000	0.00	80.64 70.62	32.72	2.578	1.000 0000	1580	81.32 14.22	31.15
2.529	1.000 0000	0.00	80.65 71.24	32.69	2.579	1.000 0000	1581	81.33 14.22	31.12
2.530	1.000 0000	0.00	80.66 71.86	32.66	2.580	1.000 0000	1582	81.34 14.22	31.09
2.531	1.000 0000	0.00	80.67 72.48	32.63	2.581	1.000 0000	1583	81.35 14.22	31.06
2.532	1.000 0000	0.00	80.68 73.10	32.60	2.582	1.000 0000	1584	81.36 14.22	31.03
2.533	1.000 0000	0.00	80.69 73.72	32.57	2.583	1.000 0000	1585	81.37 14.22	31.00
2.534	1.000 0000	0.00	80.70 74.34	32.54	2.584	1.000 0000	1586	81.38 14.22	30.97
2.535	1.000 0000	0.00	80.71 74.96	32.51	2.585	1.000 0000	1587	81.39 14.22	30.94
2.536	1.000 0000	0.00	80.72 75.58	32.47	2.586	1.000 0000	1588	81.40 14.22	30.91
2.537	1.000 0000	0.00	80.73 76.20	32.44	2.587	1.000 0000	1589	81.41 14.22	30.88
2.538	1.000 0000	0.00	80.74 76.82	32.41	2.588	1.000 0000	1590	81.42 14.22	30.85
2.539	1.000 0000	0.00	80.75 77.44	32.37	2.589	1.000 0000	1591	81.43 14.22	30.82
2.540	1.000 0000	0.00	80.76 78.06	32.34	2.590	1.000 0000	1592	81.44 14.22	30.79
2.541	1.000 0000	0.00	80.77 78.68	32.31	2.591	1.000 0000	1593	81.45 14.22	30.76
2.542	1.000 0000	0.00	80.78 79.30	32.28	2.592	1.000 0000	1594	81.46 14.22	30.73
2.543	1.000 0000	0.00	80.79 79.92	32.25	2.593	1.000 0000	1595	81.47 14.22	30.70
2.544	1.000 0000	0.00	80.80 80.54	32.21	2.594	1.000 0000	1596	81.48 14.22	30.67
2.545	1.000 0000	0.00	80.81 81.16	32.18	2.595	1.000 0000	1597	81.49 14.22	30.64
2.546	1.000 0000	0.00	80.82 81.78	32.15	2.596	1.000 0000	1598	81.50 14.22	30.61
2.547	1.000 0000	0.00	80.83 82.40	32.12	2.597	1.000 0000	1599	81.51 14.22	30.58
2.548	1.000 0000	0.00	80.84 83.02	32.09	2.598	1.000 0000	1600	81.52 14.22	30.55
2.549	1.000 0000	0.00	80.85 83.64	32.06	2.599	1.000 0000	1601	81.53 14.22	30.52
2.550	1.000 0000	0.00	80.86 84.26	32.03	2.600	1.000 0000	1602	81.54 14.22	30.49
2.551	1.000 0000	0.00	80.87 84.88	32.00	2.601	1.000 0000	1603	81.55 14.22	30.46
2.552	1.000 0000	0.00	80.88 85.50	31.97	2.602	1.000 0000	1604	81.56 14.22	30.43
2.553	1.000 0000	0.00	80.89 86.12	31.94	2.603	1.000 0000	1605	81.57 14.22	30.40
2.554	1.000 0000	0.00	80.90 86.74	31.91	2.604	1.000 0000	1606	81.58 14.22	30.37
2.555	1.000 0000	0.00	80.91 87.36	31.88	2.605	1.000 0000	1607	81.59 14.22	30.34
2.556	1.000 0000	0.00	80.92 87.98	31.85	2.606	1.000 0000	1608	81.60 14.22	30.31
2.557	1.000 0000	0.00	80.93 88.60	31.82	2.607	1.000 0000	1609	81.61 14.22	30.28
2.558	1.000 0000	0.00	80.94 89.22	31.79	2.608	1.000 0000	1610	81.62 14.22	30.25
2.559	1.000 0000	0.00	80.95 89.84	31.76	2.609	1.000 0000	1611	81.63 14.22	30.22
2.560	1.000 0000	0.00	80.96 90.46	31.73	2.610	1.000 0000	1612	81.64 14.22	30.19
2.561	1.000 0000	0.00	80.97 91.08	31.70	2.611	1.000 0000	1613	81.65 14.22	30.16
2.562	1.000 0000	0.00	80.98 91.70	31.67	2.612	1.000 0000	1614	81.66 14.22	30.13
2.563	1.000 0000	0.00	80.99 92.32	31.64	2.613	1.000 0000	1615	81.67 14.22	30.10
2.564	1.000 0000	0.00	81.00 92.94	31.61	2.614	1.000 0000	1616	81.68 14.22	30.07
2.565	1.000 0000	0.00	81.01 93.56	31.58	2.615	1.000 0000	1617	81.69 14.22	30.04
2.566	1.000 0000	0.00	81.02 94.18	31.55	2.616	1.000 0000	1618	81.70 14.22	30.01
2.567	1.000 0000	0.00	81.03 94.80	31.52	2.617	1.000 0000	1619	81.71 14.22	29.98
2.568	1.000 0000	0.00	81.04 95.42	31.49	2.618	1.000 0000	1620	81.72 14.22	29.95
2.569	1.000 0000	0.00	81.05 96.04	31.46	2.619	1.000 0000	1621	81.73 14.22	29.92
2.570	1.000 0000	0.00	81.06 96.66	31.43	2.620	1.000 0000	1622	81.74 14.22	29.89
2.571	1.000 0000	0.00	81.07 97.28	31.40	2.621	1.000 0000	1623	81.75 14.22	29.86
2.572	1.000 0000	0.00	81.08 97.90	31.37	2.622	1.000 0000	1624	81.76 14.22	29.83
2.573	1.000 0000	0.00	81.09 98.52	31.34	2.623	1.000 0000	1625	81.77 14.22	29.80
2.574	1.000 0000	0.00	81.10 99.14	31.31	2.624	1.000 0000	1626	81.78 14.22	29.77
2.575	1.000 0000	0.00	81.11 99.76	31.28	2.625	1.000 0000	1627	81.79 14.22	29.74
2.576	1.000 0000	0.00	81.12 100.38	31.25	2.626	1.000 0000	1628	81.80 14.22	29.71
2.577	1.000 0000	0.00	81.13 101.00	31.22	2.627	1.000 0000	1629	81.81 14.22	29.68
2.578	1.000 0000	0.00	81.14 101.62	31.19	2.628	1.000 0000	1630	81.82 14.22	29.65
2.579	1.000 0000	0.00	81.15 102.24	31.16	2.629	1.000 0000	1631	81.83 14.22	29.62
2.580	1.000 0000	0.00	81.16 102.86	31.13	2.630	1.000 0000	1632	81.84 14.22	29.59
2.581	1.000 0000	0.00	81.17 103.48	31.10	2.631	1.000 0000	1633	81.85 14.22	29.56
2.582	1.000 0000	0.00	81.18 104.10	31.07	2.632	1.000 0000	1634	81.86 14.22	29.53
2.583	1.000 0000	0.00	81.19 104.72	31.04	2.633	1.000 0000	1635	81.87 14.22	29.50
2.584	1.000 0000	0.00	81.20 105.34	31.01	2.634	1.000 0000	1636	81.88 14.22	29.47
2.585	1.000 0000	0.00	81.21 105.96	30.98	2.635	1.000 0000	1637	81.89 14.22	29.44
2.586	1.000 0000	0.00	81.22 106.58	30.95	2.636	1.000 0000	1638	81.90 14.22	29.41
2.587	1.000 0000	0.00	81.23 107.20	30.92	2.637	1.000 0000	1639	81.91 14.22	29.38
2.588	1.000 0000	0.00	81.24 107.82	30.89	2.638	1.000 0000	1640	81.92 14.22	29.35
2.589	1.000 0000	0.00	81.25 108.44	30.86	2.639	1.000 0000	1641	81.93 14.22	29.32
2.590	1.000 0000	0.00	81.26 109.06	30.83	2.640	1.000 0000	1642	81.94 14.22	29.29
2.591	1.000 0000	0.00	81.27 109.68	30.80	2.641	1.000 0000	1643	81.95 14.22	29.26
2.592	1.000 0000	0.00	81.28 110.30	30.77	2.642	1.000 0000	1644	81.96 14.22	29.23
2.593	1.000 0000	0.00	81.29 110.92	30.74	2.643	1.000 0000	1645	81.97 14.22	29.20
2.594	1.000 0000	0.00	81.30 111.54	30.71	2.644	1.000 0000	1646	81.98 14.22	29.17
2.595	1.000 0000	0.00	81.31 112.16	30.68	2.645	1.000 0000	1647	81.99 14.22	29.14
2.596	1.000 0000	0.00	81.32 112.78	30.65	2.646	1.000 0000			

The Gudermannian.

u	$\sinh u$	$\cosh u$	$\tanh u$	u	$\sinh u$	$\cosh u$	$\tanh u$	u	$\sinh u$	$\cosh u$	$\tanh u$
2.600	1.422 5214	1.477	81.30 16.41	30.47	2.600	1.422 7281	1.496	81.35 02.03	29.00		
.001	1.423 6601	1.478	81.30 30.30	30.45	.001	1.423 7938	1.495	81.35 31.07	28.99		
.002	1.424 8006	1.479	81.31 04.02	30.41	.002	1.424 8602	1.494	81.36 00.58	28.98		
.003	1.425 9430	1.479	81.31 37.14	30.38	.003	1.425 9305	1.493	81.36 30.43	28.97		
.004	1.427 1114	1.479	81.31 47.25	30.35	.004	1.427 0000	1.493	81.37 00.41	28.96		
2.605	1.431 2783	1.479	81.32 18.09	30.32	2.605	1.430 1599	1.492	81.37 37.35	28.95		
.006	1.433 4052	1.479	81.33 18.49	30.29	.006	1.432 3001	1.492	81.37 39.42	28.94		
.007	1.435 5540	1.479	81.33 48.57	30.27	.007	1.434 4501	1.491	81.38 04.04	28.93		
.008	1.437 6685	1.479	81.34 08.02	30.23	.008	1.436 5999	1.491	81.38 34.72	28.92		
.009	1.439 7551	1.479	81.34 49.04	30.20	.009	1.438 6881	1.491	81.39 00.40	28.91		
2.610	1.443 9015	1.478	81.35 19.32	30.17	2.610	1.443 1574	1.490	81.39 31.73	28.90		
.011	1.445 1327	1.478	81.35 49.48	30.14	.011	1.445 2075	1.490	81.39 59.00	28.89		
.012	1.447 2837	1.478	81.36 09.61	30.11	.012	1.447 3055	1.489	81.39 58.35	28.88		
.013	1.449 4407	1.478	81.36 39.71	30.08	.013	1.449 3414	1.488	81.40 17.21	28.87		
.014	1.451 5751	1.478	81.37 09.77	30.05	.014	1.451 4111	1.487	81.40 45.53	28.86		
2.615	1.454 7211	1.478	81.37 39.81	30.02	2.615	1.451 8002	1.485	81.40 44.41	28.87		
.016	1.457 8665	1.478	81.38 09.82	30.00	.016	1.453 9201	1.484	81.40 40.00	28.85		
.017	1.459 9810	1.478	81.38 39.80	29.99	.017	1.455 9855	1.483	81.40 41.52	28.85		
.018	1.462 1571	1.478	81.39 09.78	29.97	.018	1.458 0000	1.482	81.40 40.00	28.84		
.019	1.464 3021	1.478	81.39 39.67	29.96	.019	1.460 0000	1.481	81.40 40.00	28.83		
2.620	1.468 4470	1.478	81.40 09.56	29.97	2.620	1.463 5112	1.479	81.40 40.00	28.83		
.021	1.470 5918	1.477	81.40 39.43	29.95	.021	1.465 6001	1.477	81.40 40.00	28.82		
.022	1.472 7361	1.477	81.41 09.25	29.94	.022	1.467 6881	1.476	81.40 40.00	28.81		
.023	1.474 8809	1.477	81.41 39.05	29.93	.023	1.469 7761	1.475	81.40 40.00	28.80		
.024	1.476 9252	1.477	81.41 38.82	29.92	.024	1.471 8641	1.474	81.40 40.00	28.79		
2.625	1.481 0691	1.476	81.42 08.59	29.91	2.625	1.475 9002	1.472	81.40 40.00	28.79		
.026	1.483 2135	1.476	81.42 38.35	29.90	.026	1.477 9881	1.471	81.40 40.00	28.78		
.027	1.485 3574	1.476	81.43 08.10	29.89	.027	1.479 4761	1.470	81.40 40.00	28.77		
.028	1.487 5018	1.476	81.43 37.84	29.88	.028	1.481 5641	1.469	81.40 40.00	28.76		
.029	1.489 7418	1.476	81.44 07.54	29.87	.029	1.483 6521	1.468	81.40 40.00	28.75		
2.630	1.493 8851	1.475	81.45 16.81	29.86	2.630	1.487 6881	1.465	81.40 40.00	28.75		
.031	1.496 0296	1.475	81.45 46.49	29.85	.031	1.489 7761	1.464	81.40 40.00	28.74		
.032	1.498 1748	1.475	81.46 16.11	29.84	.032	1.491 8641	1.463	81.40 40.00	28.73		
.033	1.499 3199	1.475	81.46 45.41	29.83	.033	1.493 9521	1.462	81.40 40.00	28.72		
.034	1.501 4648	1.475	81.47 15.02	29.82	.034	1.496 0401	1.461	81.40 40.00	28.71		
2.635	1.507 6096	1.474	81.47 44.37	29.81	2.635	1.499 0881	1.459	81.40 40.00	28.71		
.036	1.509 7543	1.474	81.48 13.79	29.81	.036	1.501 1761	1.458	81.40 40.00	28.70		
.037	1.511 8987	1.474	81.48 43.15	29.80	.037	1.503 2641	1.457	81.40 40.00	28.69		
.038	1.514 0430	1.474	81.49 12.55	29.80	.038	1.505 3521	1.456	81.40 40.00	28.68		
.039	1.516 1872	1.474	81.49 41.88	29.79	.039	1.507 4401	1.455	81.40 40.00	28.67		
2.640	1.522 3313	1.473	81.50 11.18	29.79	2.640	1.511 4881	1.453	81.40 40.00	28.67		
.041	1.524 4752	1.473	81.50 40.46	29.78	.041	1.513 5761	1.452	81.40 40.00	28.66		
.042	1.526 6190	1.473	81.51 09.79	29.78	.042	1.515 6641	1.451	81.40 40.00	28.65		
.043	1.528 7627	1.473	81.51 39.04	29.77	.043	1.517 7521	1.450	81.40 40.00	28.64		
.044	1.530 9062	1.473	81.51 68.31	29.77	.044	1.519 8401	1.449	81.40 40.00	28.63		
2.645	1.537 0505	1.472	81.52 37.27	29.76	2.645	1.523 8881	1.445	81.40 40.00	28.63		
.046	1.539 1948	1.472	81.53 06.49	29.75	.046	1.525 9761	1.444	81.40 40.00	28.62		
.047	1.541 3389	1.472	81.53 35.59	29.75	.047	1.528 0641	1.443	81.40 40.00	28.61		
.048	1.543 4828	1.472	81.54 04.57	29.74	.048	1.530 1521	1.442	81.40 40.00	28.60		
.049	1.545 6266	1.472	81.54 33.64	29.73	.049	1.532 2401	1.441	81.40 40.00	28.59		
2.650	1.552 7703	1.471	81.55 02.63	29.72	2.650	1.536 2881	1.438	81.40 40.00	28.59		
u	$2 \tanh^{-1} \frac{u}{2}$	$\operatorname{sech} u$	$2 \tanh^{-1} \frac{u}{2}$	$\operatorname{sech} u$	u	$2 \tanh^{-1} \frac{u}{2}$	$\operatorname{sech} u$	$2 \tanh^{-1} \frac{u}{2}$	$\operatorname{sech} u$	u	$2 \tanh^{-1} \frac{u}{2}$

BRITISH STANDARD TABLES

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\sec u$	u	$\sin u$	$\cos u$	$\tan u$	$\sec u$
2.700	1.461 271	1.338	82 08 37.39	27.00	2.750	1.443 1141	1.293	82 41 03.70	26.26
2.701	1.461 274	1.337	82 09 01.45	27.07	2.751	1.443 2416	1.292	82 41 29.05	26.24
2.702	1.461 277	1.336	82 09 31.51	27.14	2.752	1.443 3681	1.291	82 41 56.18	26.21
2.703	1.461 280	1.335	82 10 00.01	27.22	2.753	1.443 4946	1.290	82 42 23.38	26.19
2.704	1.461 283	1.334	82 10 27.51	27.30	2.754	1.443 6217	1.289	82 42 58.55	26.16
2.705	1.461 286	1.333	82 10 55.02	27.36	2.755	1.443 7483	1.288	82 43 14.70	26.14
2.706	1.461 289	1.332	82 11 22.17	27.44	2.756	1.443 8754	1.287	82 43 40.82	26.11
2.707	1.461 292	1.331	82 11 49.13	27.51	2.757	1.443 0025	1.286	82 44 06.92	26.08
2.708	1.461 295	1.330	82 12 17.39	27.58	2.758	1.443 1296	1.285	82 44 32.99	26.06
2.709	1.461 298	1.329	82 12 44.66	27.65	2.759	1.443 2553	1.284	82 44 59.03	26.03
2.710	1.461 301	1.328	82 13 12.00	27.71	2.760	1.443 3814	1.283	82 45 25.05	26.01
2.711	1.461 304	1.327	82 13 39.31	27.79	2.761	1.443 5074	1.282	82 45 51.04	25.98
2.712	1.461 307	1.326	82 14 06.66	27.87	2.762	1.443 6334	1.281	82 46 17.01	25.95
2.713	1.461 310	1.325	82 14 34.03	27.95	2.763	1.443 7591	1.280	82 46 43.05	25.93
2.714	1.461 313	1.324	82 15 01.00	27.92	2.764	1.443 8847	1.279	82 47 08.87	25.90
2.715	1.461 316	1.323	82 15 28.20	27.99	2.765	1.443 0102	1.278	82 47 34.76	25.88
2.716	1.461 319	1.322	82 15 55.42	27.97	2.766	1.443 1355	1.277	82 48 00.62	25.85
2.717	1.461 322	1.321	82 16 22.64	27.94	2.767	1.443 2609	1.276	82 48 26.46	25.83
2.718	1.461 325	1.320	82 16 49.75	27.91	2.768	1.443 3861	1.275	82 48 52.27	25.80
2.719	1.461 328	1.319	82 17 16.85	27.98	2.769	1.443 5111	1.274	82 49 18.05	25.77
2.720	1.461 331	1.318	82 17 43.92	27.96	2.770	1.443 6360	1.273	82 49 43.82	25.75
2.721	1.461 334	1.317	82 18 10.99	27.93	2.771	1.443 7607	1.272	82 50 09.56	25.72
2.722	1.461 337	1.316	82 18 37.98	27.90	2.772	1.443 8854	1.271	82 50 35.27	25.70
2.723	1.461 340	1.315	82 19 04.90	27.88	2.773	1.443 0100	1.270	82 51 00.95	25.67
2.724	1.461 343	1.314	82 19 31.91	27.85	2.774	1.443 1345	1.269	82 51 26.61	25.65
2.725	1.461 346	1.313	82 20 58.87	27.82	2.775	1.443 2586	1.268	82 51 52.25	25.62
2.726	1.461 349	1.312	82 21 25.79	27.80	2.776	1.443 3827	1.267	82 52 17.85	25.60
2.727	1.461 352	1.311	82 21 52.67	27.77	2.777	1.443 5068	1.266	82 52 43.44	25.57
2.728	1.461 355	1.310	82 22 19.53	27.74	2.778	1.443 6307	1.265	82 53 09.00	25.55
2.729	1.461 358	1.309	82 22 46.36	27.72	2.779	1.443 7545	1.264	82 53 34.53	25.52
2.730	1.461 361	1.308	82 23 13.16	27.70	2.780	1.443 8781	1.263	82 54 00.04	25.49
2.731	1.461 364	1.307	82 23 39.94	27.68	2.781	1.443 0017	1.262	82 54 25.52	25.47
2.732	1.461 367	1.306	82 24 06.69	27.65	2.782	1.443 1251	1.261	82 54 50.98	25.44
2.733	1.461 370	1.305	82 24 33.41	27.63	2.783	1.443 2484	1.260	82 55 16.41	25.42
2.734	1.461 373	1.304	82 25 00.11	27.60	2.784	1.443 3716	1.259	82 55 41.81	25.39
2.735	1.461 376	1.303	82 25 26.78	27.58	2.785	1.443 4946	1.258	82 56 07.19	25.37
2.736	1.461 379	1.302	82 25 53.43	27.55	2.786	1.443 6175	1.257	82 56 32.55	25.34
2.737	1.461 382	1.301	82 26 20.05	27.53	2.787	1.443 7403	1.256	82 56 57.88	25.32
2.738	1.461 385	1.300	82 26 46.64	27.50	2.788	1.443 8630	1.255	82 57 23.19	25.29
2.739	1.461 388	1.299	82 27 13.21	27.48	2.789	1.443 9857	1.254	82 57 48.47	25.27
2.740	1.461 391	1.298	82 27 39.75	27.45	2.790	1.443 1080	1.253	82 58 13.73	25.24
2.741	1.461 394	1.297	82 28 06.26	27.43	2.791	1.443 2301	1.252	82 58 38.95	25.22
2.742	1.461 397	1.296	82 28 32.73	27.40	2.792	1.443 3521	1.251	82 59 04.16	25.19
2.743	1.461 400	1.295	82 28 59.13	27.38	2.793	1.443 4740	1.250	82 59 29.34	25.17
2.744	1.461 403	1.294	82 29 25.44	27.35	2.794	1.443 5956	1.249	82 59 54.49	25.14
2.745	1.461 406	1.293	82 29 51.83	27.33	2.795	1.443 7181	1.248	83 00 19.69	25.12
2.746	1.461 409	1.292	82 30 18.13	27.30	2.796	1.443 8401	1.247	83 00 44.71	25.09
2.747	1.461 412	1.291	82 30 44.29	27.28	2.797	1.443 9617	1.246	83 01 09.81	25.07
2.748	1.461 415	1.290	82 31 10.12	27.26	2.798	1.443 1082	1.245	83 01 34.86	25.04
2.749	1.461 418	1.289	82 31 35.93	27.23	2.799	1.443 2345	1.244	83 01 59.40	25.02
2.750	1.461 421	1.288	82 32 01.70	27.20	2.800	1.443 3598	1.243	83 02 24.90	24.99
u	$\sin u$	$\cos u$	$\tan u$	$\sec u$	u	$\sin u$	$\cos u$	$\tan u$	$\sec u$

The Gudermannian.

u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$	u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$
2.800	1.449 3258	1212	$\frac{\pi}{2}$ 02 21.90	23.099	2.850	1.455 2.665	1154	$\frac{\pi}{2}$ 22 51.09	24.28
.801	1.449 1790	1211	$\frac{\pi}{2}$ 03 09.39	23.07	.851	1.455 3.897	1152	$\frac{\pi}{2}$ 23 07.24	24.26
.802	1.449 3670	1200	$\frac{\pi}{2}$ 03 44.84	23.04	.852	1.455 4.764	1151	$\frac{\pi}{2}$ 23 30.28	24.24
.803	1.449 5688	1208	$\frac{\pi}{2}$ 03 39.77	23.02	.853	1.455 5.690	1150	$\frac{\pi}{2}$ 23 55.33	24.21
.804	1.449 8095	1207	$\frac{\pi}{2}$ 04 04.68	23.00	.854	1.455 6.678	1148	$\frac{\pi}{2}$ 24 19.60	24.09
2.805	1.449 9200	1205	$\frac{\pi}{2}$ 04 26.95	22.99	2.855	1.455 80.68	1147	$\frac{\pi}{2}$ 24 47.69	24.07
.806	1.450 0507	1205	$\frac{\pi}{2}$ 04 54.42	22.95	.856	1.455 92.92	1146	$\frac{\pi}{2}$ 25 09.34	24.04
.807	1.450 1710	1203	$\frac{\pi}{2}$ 05 00.25	22.91	.857	1.455 100.61	1145	$\frac{\pi}{2}$ 25 29.97	24.02
.808	1.450 2913	1202	$\frac{\pi}{2}$ 05 44.07	22.89	.858	1.455 115.57	1144	$\frac{\pi}{2}$ 25 56.58	24.00
.809	1.450 4115	1201	$\frac{\pi}{2}$ 06 03.81	22.77	.859	1.455 209.90	1143	$\frac{\pi}{2}$ 26 17.10	23.97
2.810	1.450 5315	1200	$\frac{\pi}{2}$ 06 33.60	22.75	2.860	1.456 38.68	1142	$\frac{\pi}{2}$ 26 40.72	23.95
.811	1.450 6514	1199	$\frac{\pi}{2}$ 06 58.33	22.72	.861	1.456 49.94	1140	$\frac{\pi}{2}$ 27 01.75	23.92
.812	1.450 7712	1198	$\frac{\pi}{2}$ 07 23.04	22.70	.862	1.456 61.60	1139	$\frac{\pi}{2}$ 27 27.77	23.90
.813	1.450 8909	1196	$\frac{\pi}{2}$ 07 47.73	22.67	.863	1.456 73.53	1138	$\frac{\pi}{2}$ 27 58.76	23.88
.814	1.451 0105	1195	$\frac{\pi}{2}$ 08 12.39	22.65	.864	1.456 85.95	1137	$\frac{\pi}{2}$ 28 14.72	23.85
2.815	1.451 1299	1194	$\frac{\pi}{2}$ 08 37.03	22.62	2.865	1.456 98.34	1136	$\frac{\pi}{2}$ 28 35.66	23.83
.816	1.451 2494	1193	$\frac{\pi}{2}$ 09 01.64	22.60	.866	1.457 07.69	1135	$\frac{\pi}{2}$ 29 00.58	23.81
.817	1.451 3685	1191	$\frac{\pi}{2}$ 09 26.33	22.58	.867	1.457 19.34	1134	$\frac{\pi}{2}$ 29 24.63	23.78
.818	1.451 4875	1190	$\frac{\pi}{2}$ 09 50.79	22.55	.868	1.457 29.15	1133	$\frac{\pi}{2}$ 29 48.55	23.76
.819	1.451 6065	1189	$\frac{\pi}{2}$ 10 15.33	22.51	.869	1.457 39.69	1132	$\frac{\pi}{2}$ 30 17.70	23.74
2.820	1.451 7253	1188	$\frac{\pi}{2}$ 10 39.81	22.50	2.870	1.457 50.81	1130	$\frac{\pi}{2}$ 30 37.04	23.72
.821	1.451 8441	1187	$\frac{\pi}{2}$ 11 04.33	22.47	.871	1.457 62.77	1129	$\frac{\pi}{2}$ 30 57.33	23.69
.822	1.451 9627	1186	$\frac{\pi}{2}$ 11 28.80	22.45	.872	1.457 74.69	1128	$\frac{\pi}{2}$ 31 21.60	23.67
.823	1.452 0812	1184	$\frac{\pi}{2}$ 11 53.21	22.43	.873	1.457 86.84	1127	$\frac{\pi}{2}$ 31 41.37	23.65
.824	1.452 1995	1183	$\frac{\pi}{2}$ 12 17.66	22.41	.874	1.457 97.10	1126	$\frac{\pi}{2}$ 32 05.44	23.62
2.825	1.452 3178	1182	$\frac{\pi}{2}$ 12 42.05	22.38	2.875	1.458 08.63	1125	$\frac{\pi}{2}$ 32 30.32	23.60
.826	1.452 4359	1181	$\frac{\pi}{2}$ 13 06.42	22.39	.876	1.458 19.99	1124	$\frac{\pi}{2}$ 32 54.30	23.58
.827	1.452 5539	1180	$\frac{\pi}{2}$ 13 30.76	22.34	.877	1.458 30.83	1123	$\frac{\pi}{2}$ 33 17.67	23.55
.828	1.452 6719	1178	$\frac{\pi}{2}$ 14 55.06	22.31	.878	1.458 41.91	1122	$\frac{\pi}{2}$ 33 40.34	23.53
.829	1.452 7897	1177	$\frac{\pi}{2}$ 14 19.38	22.28	.879	1.458 53.05	1120	$\frac{\pi}{2}$ 34 03.03	23.51
2.830	1.452 9073	1176	$\frac{\pi}{2}$ 14 43.65	22.25	2.880	1.458 64.15	1119	$\frac{\pi}{2}$ 34 27.03	23.48
.831	1.453 0249	1175	$\frac{\pi}{2}$ 15 07.90	22.21	.881	1.458 75.04	1118	$\frac{\pi}{2}$ 34 50.10	23.46
.832	1.453 1424	1174	$\frac{\pi}{2}$ 15 32.12	22.20	.882	1.458 85.46	1117	$\frac{\pi}{2}$ 35 13.45	23.44
.833	1.453 2597	1173	$\frac{\pi}{2}$ 15 56.32	22.19	.883	1.458 95.68	1116	$\frac{\pi}{2}$ 35 36.61	23.42
.834	1.453 3769	1171	$\frac{\pi}{2}$ 16 20.50	22.16	.884	1.459 06.14	1115	$\frac{\pi}{2}$ 35 59.68	23.39
2.835	1.453 4940	1170	$\frac{\pi}{2}$ 16 44.65	22.14	2.885	1.459 16.77	1114	$\frac{\pi}{2}$ 36 22.46	23.37
.836	1.453 6109	1169	$\frac{\pi}{2}$ 17 08.78	22.12	.886	1.459 27.09	1113	$\frac{\pi}{2}$ 36 45.11	23.35
.837	1.453 7278	1168	$\frac{\pi}{2}$ 17 32.88	22.09	.887	1.459 37.52	1112	$\frac{\pi}{2}$ 37 07.66	23.32
.838	1.453 8443	1167	$\frac{\pi}{2}$ 17 56.96	22.07	.888	1.459 48.04	1110	$\frac{\pi}{2}$ 37 30.07	23.30
.839	1.453 9602	1166	$\frac{\pi}{2}$ 18 21.02	22.04	.889	1.459 58.71	1109	$\frac{\pi}{2}$ 37 52.35	23.28
2.840	1.454 0777	1165	$\frac{\pi}{2}$ 18 45.05	22.02	2.890	1.459 70.68	1108	$\frac{\pi}{2}$ 38 15.73	23.26
.841	1.454 1941	1163	$\frac{\pi}{2}$ 19 09.06	22.00	.891	1.459 80.69	1107	$\frac{\pi}{2}$ 38 38.57	23.23
.842	1.454 3104	1162	$\frac{\pi}{2}$ 19 33.04	21.97	.892	1.459 90.95	1106	$\frac{\pi}{2}$ 39 01.29	23.21
.843	1.454 4265	1161	$\frac{\pi}{2}$ 19 57.01	21.95	.893	1.460 00.00	1105	$\frac{\pi}{2}$ 39 23.49	23.19
.844	1.454 5426	1160	$\frac{\pi}{2}$ 20 20.94	21.93	.894	1.460 09.01	1104	$\frac{\pi}{2}$ 39 47.07	23.17
2.845	1.454 6585	1159	$\frac{\pi}{2}$ 20 44.85	21.90	2.895	1.460 20.68	1103	$\frac{\pi}{2}$ 40 10.73	23.14
.846	1.454 7743	1158	$\frac{\pi}{2}$ 21 08.74	21.88	.896	1.460 32.10	1102	$\frac{\pi}{2}$ 40 33.49	23.12
.847	1.454 8902	1156	$\frac{\pi}{2}$ 21 32.61	21.85	.897	1.460 43.11	1100	$\frac{\pi}{2}$ 40 56.42	23.10
.848	1.455 0059	1155	$\frac{\pi}{2}$ 21 56.45	21.83	.898	1.460 54.11	1099	$\frac{\pi}{2}$ 41 18.55	23.08
.849	1.455 1211	1154	$\frac{\pi}{2}$ 22 20.27	21.81	.899	1.460 65.10	1098	$\frac{\pi}{2}$ 41 41.52	23.05
2.850	1.455 2365	1153	$\frac{\pi}{2}$ 22 44.07	21.78	2.900	1.460 86.07	1097	$\frac{\pi}{2}$ 42 04.16	23.03
u	$2 \tan^{-1} \operatorname{sech} \frac{u}{2}$	$\operatorname{sech} u$	$2 \tan^{-1} \operatorname{sech} \frac{u}{2}$	$\operatorname{sech} u$	u	$2 \tan^{-1} \operatorname{sech} \frac{u}{2}$	$\operatorname{sech} u$	$2 \tan^{-1} \operatorname{sech} \frac{u}{2}$	$\operatorname{sech} u$

SMITHSONIAN TABLE

The Gudermannian.

u	$\sin u$	$\cos u$	$\tan u$	$\cot u$	u	$\sin u$	$\cos u$	$\tan u$	$\cot u$
2.980	1.000 1947	1000	81.42 01.16	22.60	2.980	1.000 2123	1000	84.00 28.00	21.53
2.981	1.000 1951	1000	81.42 01.25	22.61	2.981	1.000 2167	1000	84.00 28.53	21.51
2.982	1.000 1955	1000	81.42 01.37	22.62	2.982	1.000 2211	1000	84.01 29.46	21.49
2.983	1.000 1959	1000	81.42 01.49	22.63	2.983	1.000 2255	1000	84.01 30.39	21.47
2.984	1.000 2003	1000	81.42 01.59	22.64	2.984	1.000 2300	1000	84.01 31.32	21.45
2.985	1.000 2007	1000	81.43 02.03	22.65	2.985	1.000 2344	1000	84.02 32.25	21.43
2.986	1.000 2011	1000	81.43 02.14	22.66	2.986	1.000 2388	1000	84.02 33.18	21.40
2.987	1.000 2015	1000	81.43 02.26	22.67	2.987	1.000 2432	1000	84.02 34.11	21.38
2.988	1.000 2019	1000	81.43 02.38	22.68	2.988	1.000 2476	1000	84.03 35.04	21.36
2.989	1.000 2023	1000	81.43 02.49	22.69	2.989	1.000 2520	1000	84.03 35.97	21.34
2.990	1.000 2027	1000	81.43 02.53	22.70	2.990	1.000 2564	1000	84.04 36.90	21.32
2.991	1.000 2031	1000	81.43 03.04	22.71	2.991	1.000 2608	1000	84.04 37.83	21.30
2.992	1.000 2035	1000	81.43 03.16	22.72	2.992	1.000 2652	1000	84.04 38.76	21.28
2.993	1.000 2039	1000	81.43 03.28	22.73	2.993	1.000 2696	1000	84.05 39.69	21.26
2.994	1.000 2043	1000	81.43 03.39	22.74	2.994	1.000 2740	1000	84.05 40.62	21.24
2.995	1.000 2047	1000	81.43 03.43	22.75	2.995	1.000 2784	1000	84.05 41.55	21.21
2.996	1.000 2051	1000	81.43 03.54	22.76	2.996	1.000 2828	1000	84.05 42.48	21.19
2.997	1.000 2055	1000	81.43 04.06	22.77	2.997	1.000 2872	1000	84.05 43.41	21.17
2.998	1.000 2059	1000	81.43 04.18	22.78	2.998	1.000 2916	1000	84.05 44.34	21.15
2.999	1.000 2063	1000	81.43 04.29	22.79	2.999	1.000 2960	1000	84.05 45.27	21.13
2.990	1.000 2067	1000	81.43 04.33	22.80	2.990	1.000 3004	1000	84.06 46.20	21.11
2.991	1.000 2071	1000	81.43 04.44	22.81	2.991	1.000 3048	1000	84.06 47.13	21.09
2.992	1.000 2075	1000	81.43 04.56	22.82	2.992	1.000 3092	1000	84.06 48.06	21.07
2.993	1.000 2079	1000	81.43 05.08	22.83	2.993	1.000 3136	1000	84.06 48.99	21.05
2.994	1.000 2083	1000	81.43 05.19	22.84	2.994	1.000 3180	1000	84.06 49.92	21.03
2.995	1.000 2087	1000	81.43 05.23	22.85	2.995	1.000 3224	1000	84.07 50.85	21.01
2.996	1.000 2091	1000	81.43 05.34	22.86	2.996	1.000 3268	1000	84.07 51.78	20.99
2.997	1.000 2095	1000	81.43 05.46	22.87	2.997	1.000 3312	1000	84.07 52.71	20.97
2.998	1.000 2099	1000	81.43 05.58	22.88	2.998	1.000 3356	1000	84.07 53.64	20.95
2.999	1.000 2103	1000	81.43 06.09	22.89	2.999	1.000 3400	1000	84.07 54.57	20.93
2.990	1.000 2107	1000	81.43 06.13	22.90	2.990	1.000 3444	1000	84.07 55.50	20.91
2.991	1.000 2111	1000	81.43 06.24	22.91	2.991	1.000 3488	1000	84.07 56.43	20.89
2.992	1.000 2115	1000	81.43 06.36	22.92	2.992	1.000 3532	1000	84.07 57.36	20.87
2.993	1.000 2119	1000	81.43 06.48	22.93	2.993	1.000 3576	1000	84.07 58.29	20.85
2.994	1.000 2123	1000	81.43 06.59	22.94	2.994	1.000 3620	1000	84.07 59.22	20.83
2.995	1.000 2127	1000	81.43 07.03	22.95	2.995	1.000 3664	1000	84.08 00.15	20.81
2.996	1.000 2131	1000	81.43 07.14	22.96	2.996	1.000 3708	1000	84.08 01.08	20.79
2.997	1.000 2135	1000	81.43 07.26	22.97	2.997	1.000 3752	1000	84.08 02.01	20.77
2.998	1.000 2139	1000	81.43 07.38	22.98	2.998	1.000 3796	1000	84.08 02.94	20.75
2.999	1.000 2143	1000	81.43 07.49	22.99	2.999	1.000 3840	1000	84.08 03.87	20.73
2.990	1.000 2147	1000	81.43 07.53	23.00	2.990	1.000 3884	1000	84.08 04.80	20.71
2.991	1.000 2151	1000	81.43 08.04	23.01	2.991	1.000 3928	1000	84.08 05.73	20.69
2.992	1.000 2155	1000	81.43 08.16	23.02	2.992	1.000 3972	1000	84.08 06.66	20.67
2.993	1.000 2159	1000	81.43 08.28	23.03	2.993	1.000 4016	1000	84.08 07.59	20.65
2.994	1.000 2163	1000	81.43 08.39	23.04	2.994	1.000 4060	1000	84.08 08.52	20.63
2.995	1.000 2167	1000	81.43 08.51	23.05	2.995	1.000 4104	1000	84.08 09.45	20.61
2.996	1.000 2171	1000	81.43 09.03	23.06	2.996	1.000 4148	1000	84.08 10.38	20.59
2.997	1.000 2175	1000	81.43 09.14	23.07	2.997	1.000 4192	1000	84.08 11.31	20.57
2.998	1.000 2179	1000	81.43 09.26	23.08	2.998	1.000 4236	1000	84.08 12.24	20.55
2.999	1.000 2183	1000	81.43 09.38	23.09	2.999	1.000 4280	1000	84.08 13.17	20.53
2.990	1.000 2187	1000	81.43 09.49	23.10	2.990	1.000 4324	1000	84.08 14.10	20.51
2.991	1.000 2191	1000	81.43 09.61	23.11	2.991	1.000 4368	1000	84.08 15.03	20.49
2.992	1.000 2195	1000	81.43 09.73	23.12	2.992	1.000 4412	1000	84.08 15.96	20.47
2.993	1.000 2199	1000	81.43 09.84	23.13	2.993	1.000 4456	1000	84.08 16.89	20.45
2.994	1.000 2203	1000	81.43 09.96	23.14	2.994	1.000 4500	1000	84.08 17.82	20.43
2.995	1.000 2207	1000	81.43 10.08	23.15	2.995	1.000 4544	1000	84.08 18.75	20.41
2.996	1.000 2211	1000	81.43 10.19	23.16	2.996	1.000 4588	1000	84.08 19.68	20.39
2.997	1.000 2215	1000	81.43 10.31	23.17	2.997	1.000 4632	1000	84.08 20.61	20.37
2.998	1.000 2219	1000	81.43 10.43	23.18	2.998	1.000 4676	1000	84.08 21.54	20.35
2.999	1.000 2223	1000	81.43 10.54	23.19	2.999	1.000 4720	1000	84.08 22.47	20.33
2.990	1.000 2227	1000	81.43 10.66	23.20	2.990	1.000 4764	1000	84.08 23.40	20.31
2.991	1.000 2231	1000	81.43 10.78	23.21	2.991	1.000 4808	1000	84.08 24.33	20.29
2.992	1.000 2235	1000	81.43 10.89	23.22	2.992	1.000 4852	1000	84.08 25.26	20.27
2.993	1.000 2239	1000	81.43 11.01	23.23	2.993	1.000 4896	1000	84.08 26.19	20.25
2.994	1.000 2243	1000	81.43 11.13	23.24	2.994	1.000 4940	1000	84.08 27.12	20.23
2.995	1.000 2247	1000	81.43 11.24	23.25	2.995	1.000 4984	1000	84.08 28.05	20.21
2.996	1.000 2251	1000	81.43 11.36	23.26	2.996	1.000 5028	1000	84.08 28.98	20.19
2.997	1.000 2255	1000	81.43 11.48	23.27	2.997	1.000 5072	1000	84.08 29.91	20.17
2.998	1.000 2259	1000	81.43 11.59	23.28	2.998	1.000 5116	1000	84.08 30.84	20.15
2.999	1.000 2263	1000	81.43 12.11	23.29	2.999	1.000 5160	1000	84.08 31.77	20.13
2.990	1.000 2267	1000	81.43 12.23	23.30	2.990	1.000 5204	1000	84.08 32.70	20.11
2.991	1.000 2271	1000	81.43 12.34	23.31	2.991	1.000 5248	1000	84.08 33.63	20.09
2.992	1.000 2275	1000	81.43 12.46	23.32	2.992	1.000 5292	1000	84.08 34.56	20.07
2.993	1.000 2279	1000	81.43 12.58	23.33	2.993	1.000 5336	1000	84.08 35.49	20.05
2.994	1.000 2283	1000	81.43 13.09	23.34	2.994	1.000 5380	1000	84.08 36.42	20.03
2.995	1.000 2287	1000	81.43 13.21	23.35	2.995	1.000 5424	1000	84.08 37.35	20.01
2.996	1.000 2291	1000	81.43 13.33	23.36	2.996	1.000 5468	1000	84.08 38.28	19.99
2.997	1.000 2295	1000	81.43 13.44	23.37	2.997	1.000 5512	1000	84.08 39.21	19.97
2.998	1.000 2299	1000	81.43 13.56	23.38	2.998	1.000 5556	1000	84.08 40.14	19.95
2.999	1.000 2303	1000	81.43 13.68	23.39	2.999	1.000 5600	1000	84.08 41.07	19.93
2.990	1.000 2307	1000	81.43 13.79	23.40	2.990	1.000 5644	1000	84.08 42.00	19.91
2.991	1.000 2311	1000	81.43 13.91	23.41	2.991	1.000 5688	1000	84.08 42.93	19.89
2.992	1.000 2315	1000	81.43 14.03	23.42	2.992	1.000 5732	1000	84.08 43.86	19.87
2.993	1.000 2319	1000	81.43 14.14	23.43	2.993	1.000 5776	1000	84.08 44.79	19.85
2.994	1.000 2323	1000	81.43 14.26	23.44	2.994	1.000 5820	1000	84.08 45.72	19.83
2.995	1.000 2327	1000	81.43 14.38	23.45	2.995	1.000 5864	1000	84.08 46.65	19.81
2.996	1.000 2331	1000	81.43 14.49	23.46	2.996	1.000 5908	1000	84.08 47.58	19.79
2.997	1.000 2335	1000	81.43 14.61	23.47	2.997	1.000 5952	1000	84.08 48.51	19.77
2.998	1.000 2339	1000	81.43 14.73	23.48	2.998	1.000 5996	1000	84.08 49.44	19.75
2.999	1.000 2343	1000	81.43 14.84	23.49	2.999	1.000 6040	1000	84.08 50.37	19.73
2.990	1.000 2347	1000	81.43 14.96	23.50	2.990	1.000 6084	1000	84.08 51.30	19.71
2.991	1.000 2351	1000	81.43 15.08	23.51	2.991	1.000 6128	1000	84.08 52.23	19.69
2.992	1.000 2355	1000	81.43 15.19	23.52	2.992	1.000 6172	1000	84.08 53.16	19.67
2.993	1.000 2359	1000	81.43 15.31	23.53	2.993	1.000 6216	1000	84.08 54.09	19.65
2.994	1.000 2363	1000	81.43 15.43	23.54	2.994	1.000 6260	1000	84.08 55.02	19.63
2.995	1.000 2367	1000	81.43 15.54	23.55	2.995	1.000 6304	1000	84.08 55.95	19.61
2.996	1.000 2371	1000	81.43 15.66	23.56	2.996	1.000 6348	1000	84.08 5	

The Undermanian.

α	$\phi \alpha$	$\alpha \phi'$	$\phi \alpha$	$\alpha \phi'$	α	$\phi \alpha$	$\alpha \phi'$	$\phi \alpha$	$\alpha \phi'$
3.00	1.471 2043	0133	81 17 51.90	201.88	3.50	1.530 4199	6031	86 35 26.47	121.46
.01	.472 2047	0135	81 21 22.47	202.85	.51	.531 0391	9071	86 31 39.31	123.22
.02	.473 2051	0137	81 24 43.00	203.81	.52	.531 0447	9015	86 30 32.02	122.00
.03	.474 2101	0139	81 28 03.36	204.83	.53	.532 2013	9309	86 38 31.31	120.79
.04	.475 2104	0141	81 31 24.72	205.83	.54	.532 2059	9248	86 40 31.59	119.59
3.05	1.476 2112	0143	81 34 47.54	206.83	3.55	1.533 3638	5799	86 48 33.49	118.40
.06	.477 2106	0137	81 37 51.59	207.00	.55	.534 0380	9081	86 41 31.30	117.22
.07	.478 2106	0134	81 41 04.94	207.00	.57	.534 4225	9257	86 46 27.01	116.06
.08	.478 2105	0131	81 44 13.78	207.30	.58	.535 0901	9371	86 48 23.13	114.91
.09	.479 2153	0132	81 47 22.01	207.34	.59	.535 6117	9346	86 50 17.70	113.66
3.10	1.480 2198	0132	81 50 31.41	208.47	3.60	1.536 1625	5901	86 52 10.06	112.63
.11	.481 2153	0133	81 53 33.07	208.61	.61	.536 2098	9366	86 54 01.03	111.52
.12	.482 2153	0131	81 56 33.69	208.80	.62	.537 2135	9311	86 55 51.02	110.41
.13	.483 2191	0130	81 59 35.94	209.00	.63	.537 2794	9309	86 57 41.35	109.31
.14	.484 2187	0130	85 02 35.79	209.22	.64	.538 3017	9347	86 59 32.12	108.22
3.15	1.485 2145	0135	85 05 33.01	210.45	3.65	1.538 8258	5905	86 01 20.30	107.15
.16	.485 2197	0136	85 08 33.01	210.70	.66	.539 3127	9343	86 03 06.92	106.08
.17	.486 2195	0136	85 11 22.45	210.97	.67	.539 8514	9307	86 04 52.17	105.03
.18	.487 2192	0133	85 14 11.95	211.26	.68	.539 3641	9311	86 06 36.68	103.99
.19	.487 2191	0133	85 17 01.07	211.56	.69	.539 1927	9301	86 08 20.15	102.95
3.20	1.489 2179	0130	85 20 51.69	212.83	3.70	1.541 3393	6012	86 10 02.59	101.91
.21	.490 2159	0131	85 23 46.71	213.01	.71	.541 8511	9303	86 11 44.31	100.82
.22	.490 2157	0130	85 26 46.13	213.26	.72	.542 1429	9311	86 13 31.73	99.80
.23	.491 2156	0130	85 28 04.86	213.63	.73	.542 8009	9299	86 15 01.44	98.82
.24	.491 2185	0131	85 30 51.03	213.92	.74	.543 3971	9248	86 16 44.57	97.93
3.25	1.493 2167	0131	85 33 32.79	215.71	3.75	1.543 2695	6001	86 18 20.02	96.96
.26	.493 2157	0131	85 36 11.42	215.13	.75	.544 2424	9284	86 19 59.59	96.00
.27	.494 2156	0130	85 38 46.77	215.50	.77	.545 3004	9288	86 21 32.01	95.05
.28	.495 2153	0130	85 41 21.58	215.61	.78	.545 1386	9292	86 23 06.60	94.10
.29	.495 2151	0131	85 43 56.79	215.67	.79	.545 6148	9217	86 24 49.23	93.17
3.30	1.497 2151	0130	85 46 31.51	215.95	3.80	1.546 0621	6012	86 26 12.01	92.21
.31	.497 2150	0131	85 49 03.69	216.11	.81	.546 3072	9248	86 27 44.71	91.34
.32	.498 2148	0131	85 51 33.48	216.05	.82	.546 9753	9211	86 29 15.11	90.42
.33	.499 2147	0130	85 54 03.59	216.17	.83	.547 3819	9199	86 30 45.55	89.54
.34	.499 2147	0130	85 56 27.34	216.00	.84	.547 8127	9207	86 32 14.72	88.63
3.35	1.500 2164	0131	85 58 53.60	216.56	3.85	1.548 2113	6011	86 33 42.30	87.75
.36	.501 2157	0130	85 01 01.11	216.12	.85	.548 6442	9217	86 35 10.11	86.87
.37	.502 2155	0130	85 03 31.31	216.70	.87	.549 0196	9199	86 36 36.55	86.01
.38	.502 2157	0130	85 05 01.31	216.70	.88	.549 3005	9188	86 38 02.13	85.15
.39	.503 2145	0131	85 06 19.14	216.60	.89	.549 6143	9207	86 39 26.86	84.31
3.40	1.501 2146	0130	85 08 37.65	217.51	3.90	1.549 3180	6012	86 40 59.75	83.47
.41	.503 2180	0131	85 12 54.48	217.16	.91	.550 2797	9207	86 42 13.85	82.61
.42	.505 2148	0130	85 15 00.90	217.80	.92	.551 1193	9207	86 43 36.01	81.72
.43	.506 2151	0131	85 17 24.40	218.47	.93	.551 5140	9197	86 44 57.15	80.80
.44	.506 2150	0130	85 19 36.90	218.14	.94	.551 9048	9208	86 46 18.05	79.93
3.45	1.503 2163	0131	85 21 44.38	219.83	3.95	1.552 2017	6009	86 47 37.85	79.09
.46	.507 2157	0130	85 23 58.50	219.51	.95	.552 6217	9111	86 48 56.85	78.24
.47	.508 2153	0130	85 25 07.41	219.71	.97	.553 0310	9173	86 50 15.17	77.33
.48	.509 2150	0130	85 28 15.05	219.67	.98	.553 4301	9175	86 51 32.54	76.46
.49	.509 2148	0131	85 30 21.39	219.71	.99	.553 8011	9209	86 52 49.19	75.59
3.50	1.510 4199	6031	86 32 26.47	121.46	4.00	1.531 1691	3012	87 54 05.10	75.53
α	$21\text{as } 40^{\circ} - \frac{\pi}{2}$	arcus	$21\text{as } 40^{\circ} - 00^{\circ}$	wascus	α	$21\text{as } 40^{\circ} - \frac{\pi}{2}$	wascus	$21\text{as } 40^{\circ} - 00^{\circ}$	wascus

The Gudermannian.

u	$\sinh u$	$\cosh u$	$\tanh u$	$\operatorname{sech} u$	u	$\sinh u$	$\cosh u$	$\tanh u$	$\operatorname{sech} u$
4.00	1.541 1941	3.662	.87 54 05.10	75.53	4.50	1.548 5792	2222	88 43 37.40	45.82
.01	1.541 5135	3.675	87 55 38.29	74.78	.51	1.548 8003	2199	88 44 22.99	45.37
.02	1.541 7943	3.689	87 56 31.69	74.01	.52	1.549 0191	2178	88 45 08.15	44.92
.03	1.542 1051	3.694	87 57 46.33	73.26	.53	1.549 2358	2156	88 45 52.82	44.47
.04	1.542 4499	3.699	87 59 01.79	72.52	.54	1.549 4503	2131	88 46 37.07	44.03
4.05	1.542 8351	3.703	88 00 18.48	71.85	4.55	1.549 6627	2113	88 47 20.88	43.59
.06	1.543 2517	3.709	88 01 24.92	71.14	.56	1.549 8730	2092	88 48 04.25	43.15
.07	1.543 6149	3.715	88 02 35.76	70.43	.57	1.550 0811	2071	88 48 47.19	42.73
.08	1.543 9276	3.721	88 03 45.81	69.73	.58	1.550 2873	2051	88 49 29.70	42.30
.09	1.544 2840	3.727	88 04 55.02	69.03	.59	1.550 4913	2030	88 50 11.79	41.88
4.10	1.544 6899	3.734	88 06 03.04	68.35	4.60	1.550 6933	2010	88 50 53.46	41.46
.11	1.545 1347	3.740	88 07 11.01	67.67	.61	1.550 8933	1990	88 51 34.72	41.05
.12	1.545 5693	3.746	88 08 19.25	67.00	.62	1.551 0914	1970	88 52 15.56	40.64
.13	1.546 0033	3.752	88 09 25.91	66.33	.63	1.551 2874	1951	88 52 56.00	40.21
.14	1.546 4363	3.758	88 10 31.90	65.67	.64	1.551 4815	1931	88 53 36.04	39.84
4.15	1.547 2999	3.764	88 11 37.45	65.02	4.65	1.551 6737	1912	88 54 15.68	39.44
.16	1.547 7337	3.771	88 12 41.91	64.37	.66	1.551 8640	1893	88 54 54.92	39.05
.17	1.548 1611	3.777	88 13 45.99	63.73	.67	1.552 0523	1874	88 55 33.77	38.66
.18	1.548 5892	3.784	88 14 49.49	63.10	.68	1.552 2386	1856	88 56 12.24	38.28
.19	1.549 0194	3.790	88 15 52.19	62.47	.69	1.552 4235	1837	88 56 50.33	37.89
4.20	1.549 4521	3.796	88 16 54.34	61.85	4.70	1.552 6063	1819	88 57 28.03	37.52
.21	1.549 8871	3.803	88 17 55.83	61.23	.71	1.552 7873	1801	88 58 05.36	37.14
.22	1.550 3244	3.809	88 18 56.81	60.62	.72	1.552 9663	1783	88 58 42.32	36.77
.23	1.550 7641	3.816	88 19 57.13	60.02	.73	1.553 1434	1765	88 59 18.94	36.41
.24	1.551 2063	3.823	88 20 56.85	59.42	.74	1.553 3195	1748	88 59 55.14	36.05
4.25	1.551 6521	3.829	88 21 55.68	58.83	4.75	1.553 4934	1730	89 00 31.01	35.69
.26	1.552 0999	3.836	88 22 54.51	58.25	.76	1.553 6653	1713	89 01 06.52	35.33
.27	1.552 5494	3.843	88 23 53.48	57.67	.77	1.553 8360	1696	89 01 41.68	34.98
.28	1.552 9999	3.850	88 24 50.21	57.10	.78	1.554 0057	1679	89 02 16.48	34.63
.29	1.553 4521	3.857	88 25 46.07	56.53	.79	1.554 1748	1662	89 02 50.94	34.29
4.30	1.553 9069	3.864	88 26 42.04	55.96	4.80	1.554 3432	1645	89 03 25.06	33.95
.31	1.554 3641	3.871	88 27 38.00	55.40	.81	1.554 5109	1629	89 03 58.81	33.61
.32	1.554 8231	3.878	88 28 33.73	54.84	.82	1.554 6781	1613	89 04 32.28	33.28
.33	1.555 2841	3.885	88 29 28.11	54.28	.83	1.554 8439	1597	89 05 05.70	32.94
.34	1.555 7472	3.892	88 30 22.35	53.72	.84	1.555 0085	1581	89 05 38.17	32.62
4.35	1.556 6111	3.900	88 31 11.35.85	53.21	4.85	1.555 1730	1566	89 06 10.63	32.30
.36	1.557 0799	3.907	88 32 04.16	52.71	.86	1.555 3367	1550	89 06 42.70	31.97
.37	1.557 5505	3.914	88 32 56.37	52.21	.87	1.555 4997	1535	89 07 14.57	31.65
.38	1.558 0230	3.921	88 33 48.09	51.69	.88	1.555 6625	1520	89 07 46.07	31.34
.39	1.558 4974	3.928	88 34 41.50	51.15	.89	1.555 8253	1504	89 08 17.25	31.03
4.40	1.559 0739	3.935	88 35 35.30	50.61	4.90	1.555 9931	1489	89 08 48.12	30.72
.41	1.559 5523	3.942	88 36 28.89	50.14	.91	1.560 1593	1474	89 09 18.69	30.41
.42	1.560 0326	3.949	88 37 22.70	49.64	.92	1.560 3243	1459	89 09 48.91	30.11
.43	1.560 5149	3.956	88 38 16.15	49.14	.93	1.560 4891	1445	89 10 18.97	29.81
.44	1.560 9991	3.963	88 39 10.05	48.65	.94	1.560 6537	1431	89 10 48.57	29.51
4.45	1.561 4851	3.970	88 39 42.46	48.17	4.95	1.560 8182	1417	89 11 17.03	29.22
.46	1.561 9729	3.977	88 40 39.40	47.69	.96	1.560 9827	1403	89 11 47.01	28.93
.47	1.562 4626	3.984	88 41 37.85	47.22	.97	1.561 1473	1389	89 12 15.79	28.64
.48	1.562 9541	3.991	88 42 01.83	46.75	.98	1.561 3120	1375	89 12 44.29	28.36
.49	1.563 4474	3.998	88 42 51.23	46.28	.99	1.561 4767	1361	89 13 12.51	28.07
4.50	1.563 9424	4.005	88 43 37.90	45.82	5.00	1.562 3706	1348	89 13 40.44	27.79
u	$2 \tanh^{-1} u$	$\operatorname{sech} u$	$2 \tanh^{-1} \operatorname{sech} u$	$\operatorname{sech} u$	u	$2 \tanh^{-1} \operatorname{sech} u$	$\operatorname{sech} u$	$2 \tanh^{-1} \operatorname{sech} u$	$\operatorname{sech} u$

The Gudermannian.

u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$	u	$\operatorname{gd} u$	$\operatorname{sech} u$	$\operatorname{gd} u$	$\operatorname{sech} u$
5.00	1.557 3286	13.98	89 13 40.44	27.70	5.30	1.562 6228	817	89 31 54.10	16.19
.01	.557 4547	13.93	89 14 08.30	27.52	.51	.562 7012	820	89 32 10.37	16.09
.02	.557 5785	13.87	89 14 35.48	27.34	.52	.562 7807	824	89 32 27.24	15.93
.03	.557 7000	13.80	89 15 02.58	27.17	.53	.562 8611	793	89 32 43.02	15.76
.04	.557 8191	13.73	89 15 29.44	26.99	.54	.562 9423	795	89 33 00.20	15.60
5.05	1.557 9778	12.82	89 15 56.00	26.44	5.55	1.563 0215	777	89 33 16.32	15.04
.06	.558 1061	12.69	89 16 22.30	26.31	.50	.563 0988	770	89 33 32.27	15.38
.07	.558 2117	12.59	89 16 48.35	25.64	.57	.563 1751	762	89 33 48.09	15.72
.08	.558 3167	12.11	89 17 14.14	25.46	.58	.563 2512	755	89 34 03.71	15.56
.09	.558 4201	12.12	89 17 39.67	25.40	.59	.563 3273	747	89 34 19.20	15.41
5.10	1.558 6090	12.10	89 18 01.04	25.15	5.60	1.563 4036	740	89 34 34.54	15.25
.11	.558 7243	12.07	89 18 26.07	24.99	.61	.563 4794	732	89 34 49.73	15.10
.12	.558 8344	11.95	89 18 51.71	24.95	.62	.563 5571	725	89 35 04.73	14.95
.13	.558 9413	11.83	89 19 16.47	24.41	.63	.563 6362	718	89 35 19.64	14.80
.14	.559 0461	11.72	89 19 41.36	24.16	.64	.563 6966	711	89 35 34.34	14.66
5.15	1.559 1076	11.60	89 20 07.60	24.02	5.65	1.563 7643	703	89 35 48.93	14.51
.16	.559 1131	11.48	89 20 33.40	23.99	.65	.563 8313	697	89 36 03.40	14.37
.17	.559 1273	11.27	89 20 59.07	23.45	.67	.563 9000	690	89 36 17.66	14.22
.18	.559 1394	11.20	89 21 18.31	23.22	.68	.563 9692	683	89 36 31.71	14.08
.19	.559 1524	11.12	89 21 41.41	22.69	.69	.564 0372	676	89 36 45.58	13.94
5.20	1.559 7631	11.03	89 22 04.28	22.76	5.70	1.564 1044	669	89 36 59.20	13.80
.21	.559 8231	10.92	89 22 26.92	22.53	.71	.564 1700	662	89 37 13.11	13.67
.22	.559 8818	10.81	89 22 49.34	22.31	.72	.564 2379	656	89 37 27.01	13.53
.23	.559 9381	10.70	89 23 11.53	22.08	.73	.564 3062	649	89 37 40.29	13.40
.24	.559 9929	10.60	89 23 33.38	21.86	.74	.564 3748	643	89 37 53.42	13.27
5.25	1.560 3031	10.10	89 23 55.26	21.65	5.75	1.564 4438	637	89 38 07.01	13.13
.26	.560 3658	10.00	89 24 16.80	21.43	.76	.564 5131	630	89 38 20.68	13.00
.27	.560 4262	9.90	89 24 38.13	21.22	.77	.564 5828	623	89 38 34.01	12.87
.28	.560 4846	9.83	89 24 59.23	21.01	.78	.564 6529	616	89 38 47.32	12.74
.29	.560 5419	9.68	89 25 20.14	20.80	.79	.564 7232	612	89 38 59.50	12.61
5.30	1.560 8132	9.68	89 25 40.81	20.69	5.80	1.564 7943	606	89 39 11.05	12.49
.31	.560 8720	9.85	89 26 01.31	20.39	.81	.564 8643	599	89 39 23.48	12.37
.32	.561 0300	9.62	89 26 21.61	20.18	.82	.564 9341	591	89 39 35.78	12.24
.33	.561 0881	9.69	89 26 41.69	19.98	.83	.564 1002	584	89 39 47.96	12.12
.34	.561 2037	9.59	89 27 01.58	19.78	.84	.564 1667	578	89 40 00.02	12.00
5.35	1.561 3001	9.50	89 27 21.26	19.59	5.85	1.565 0295	576	89 40 11.66	11.88
.36	.561 3616	9.40	89 27 40.75	19.39	.86	.565 0970	570	89 40 23.73	11.76
.37	.561 4184	9.31	89 28 00.08	19.20	.87	.565 1644	565	89 40 35.41	11.65
.38	.561 4749	9.22	89 28 19.15	19.01	.88	.565 2328	559	89 40 47.09	11.53
.39	.561 5292	9.12	89 28 38.06	18.82	.89	.565 3012	553	89 41 00.54	11.41
5.40	1.561 7632	9.03	89 28 56.70	18.63	5.90	1.565 3725	548	89 41 09.00	11.30
.41	.561 8131	8.91	89 29 15.34	18.45	.91	.565 4420	542	89 41 21.15	11.18
.42	.561 8621	8.85	89 29 34.08	18.26	.92	.565 5121	537	89 41 32.88	11.06
.43	.561 9102	8.77	89 29 51.85	18.08	.93	.565 5824	532	89 41 43.30	10.97
.44	.561 1174	8.68	89 30 09.85	17.90	.94	.565 6523	526	89 41 53.41	10.86
5.45	1.561 2038	8.60	89 30 27.66	17.72	5.95	1.565 7247	521	89 42 05.02	10.75
.46	.561 2583	8.51	89 30 45.29	17.55	.96	.565 7965	516	89 42 15.71	10.64
.47	.561 3129	8.42	89 31 02.75	17.37	.97	.565 8689	511	89 42 26.30	10.54
.48	.561 4377	8.34	89 31 20.11	17.20	.98	.565 9417	506	89 42 36.79	10.43
.49	.561 5497	8.26	89 31 37.15	17.03	.99	.565 9920	501	89 42 47.17	10.33
5.50	1.562 6228	8.17	89 31 54.30	16.86	6.00	1.565 8388	496	89 42 57.44	10.23
u	$2 \operatorname{In}^{-1} \operatorname{Coth} \frac{u}{2}$	$\operatorname{sech} u$	$2 \operatorname{In}^{-1} \frac{e^u - 1}{e^u + 1}$	$\operatorname{sech} u$	u	$2 \operatorname{In}^{-1} \operatorname{Coth} \frac{u}{2}$	$\operatorname{sech} u$	$2 \operatorname{In}^{-1} \frac{e^u - 1}{e^u + 1}$	$\operatorname{sech} u$

TABLE VII
THE ANTI-GUDERMANNIAN

m expressed in minutes in terms of the Gudermannian,

$gd\ u$ expressed in degrees and minutes,

1 minute = 0.000 2908 8821 radians,

$$0.000\ 2908\ 8821\ m = -\log_e \tan \left(\frac{1}{4} \pi + \frac{1}{2} gd\ u \right) = u \text{ radians.}$$

In this table the second decimal place is sometimes erroneous by a unit.

The Anti-Germansians

id	0°	1°	2°	3°	4°	5°	6°	7°	8°	9°	10°	11°
0°	0.000	0.000	1.20.02	180.085	240.19	300.38	360.66	420.95	481.27	541.63	602.02	662.44
1	1.00	0.00	1.21.02	181.085	241.20	301.38	361.66	421.95	482.28	542.65	603.04	663.46
2	2.00	0.00	1.22.04	182.085	242.20	302.38	362.66	422.95	483.28	543.65	604.04	664.46
3	3.00	0.00	1.23.04	183.085	243.20	303.38	363.66	423.95	484.28	544.65	605.04	665.46
4	4.00	0.00	1.24.03	184.085	244.20	304.38	364.66	424.95	485.28	545.65	606.04	666.46
5	5.00	0.00	1.25.03	185.085	245.21	305.39	365.66	425.96	486.29	546.66	607.05	667.47
6	6.00	0.00	1.26.03	186.085	246.21	306.39	366.66	426.96	487.29	547.66	608.05	668.47
7	7.00	0.00	1.27.04	187.085	247.22	307.40	367.66	427.96	488.30	548.67	609.06	669.48
8	8.00	0.00	1.28.04	188.085	248.22	308.40	368.66	428.96	489.30	549.67	610.06	670.48
9	9.00	0.00	1.29.04	189.085	249.23	309.41	369.66	429.96	490.31	550.68	611.07	671.49
10	10.00	0.00	1.30.04	190.085	250.24	310.42	370.66	430.97	491.32	551.68	612.07	672.49
11	11.00	0.00	1.31.03	191.085	251.25	311.42	371.66	431.97	492.32	552.69	613.08	673.50
12	12.00	0.00	1.32.03	192.085	252.25	312.43	372.66	432.97	493.33	553.69	614.08	674.50
13	13.00	0.00	1.33.03	193.085	253.25	313.43	373.66	433.97	494.33	554.69	615.09	675.51
14	14.00	0.00	1.34.03	194.085	254.26	314.44	374.66	434.97	495.34	555.70	616.09	676.51
15	15.00	0.00	1.35.03	195.085	255.26	315.44	375.66	435.97	496.34	556.70	617.10	677.52
16	16.00	0.00	1.36.03	196.085	256.26	316.45	376.66	436.97	497.35	557.71	618.10	678.52
17	17.00	0.00	1.37.03	197.085	257.27	317.45	377.66	437.97	498.35	558.71	619.11	679.53
18	18.00	0.00	1.38.03	198.085	258.27	318.45	378.66	438.97	499.36	559.72	620.11	680.53
19	19.00	0.00	1.39.03	199.085	259.28	319.46	379.66	439.97	500.36	560.72	621.12	681.54
20	20.00	0.00	1.40.03	200.085	260.28	320.46	380.66	440.97	501.37	561.73	622.12	682.54
21	21.00	0.00	1.41.03	201.085	261.29	321.47	381.66	441.97	502.37	562.73	623.13	683.55
22	22.00	0.00	1.42.03	202.085	262.29	322.47	382.66	442.97	503.38	563.74	624.13	684.55
23	23.00	0.00	1.43.03	203.085	263.30	323.48	383.66	443.97	504.38	564.74	625.14	685.56
24	24.00	0.00	1.44.03	204.085	264.30	324.48	384.66	444.97	505.39	565.75	626.14	686.56
25	25.00	0.00	1.45.03	205.085	265.31	325.49	385.66	445.97	506.39	566.75	627.15	687.57
26	26.00	0.00	1.46.03	206.085	266.31	326.49	386.66	446.97	507.40	567.76	628.15	688.57
27	27.00	0.00	1.47.03	207.085	267.32	327.50	387.66	447.97	508.40	568.76	629.16	689.58</

The Anti-Gudermannian.

deg	11°	12°	13°	14°	15°	16°	17°	18°	19°	20°	deg
0	649.299	725.34	786.78	838.49	880.46	912.73	935.36	948.22	951.49	945.14	0
1	649.13	725.11	787.81	839.54	881.50	913.77	936.35	949.27	952.54	945.26	1
2	648.96	724.87	787.54	839.25	881.21	913.48	936.06	948.98	952.25	944.97	2
3	648.79	724.64	787.27	838.96	880.92	913.19	935.77	948.69	951.96	944.68	3
4	648.62	724.41	787.00	838.67	880.63	912.90	935.48	948.40	951.67	944.39	4
5	648.45	724.18	786.73	838.38	880.34	912.61	935.19	948.11	951.38	944.10	5
6	648.28	723.95	786.46	838.09	880.05	912.32	934.90	947.82	951.09	943.81	6
7	648.11	723.72	786.19	837.80	879.76	912.03	934.61	947.53	950.80	943.52	7
8	647.94	723.49	785.92	837.51	879.47	911.74	934.32	947.24	950.51	943.23	8
9	647.77	723.26	785.65	837.22	879.18	911.45	934.03	946.95	950.22	942.94	9
10	647.60	723.03	785.38	836.93	878.89	911.16	933.74	946.66	949.93	942.65	10
11	647.43	722.80	785.11	836.64	878.60	910.87	933.45	946.37	949.64	942.36	11
12	647.26	722.57	784.84	836.35	878.31	910.58	933.16	946.08	949.35	942.07	12
13	647.09	722.34	784.57	836.06	878.02	910.29	932.87	945.79	949.06	941.78	13
14	646.92	722.11	784.30	835.77	877.73	909.99	932.58	945.50	948.77	941.49	14
15	646.75	721.88	784.03	835.48	877.44	909.70	932.29	945.21	948.48	941.20	15
16	646.58	721.65	783.76	835.19	877.15	909.41	932.00	944.92	948.19	940.91	16
17	646.41	721.42	783.49	834.90	876.86	909.12	931.71	944.63	947.90	940.62	17
18	646.24	721.19	783.22	834.61	876.57	908.83	931.42	944.34	947.61	940.33	18
19	646.07	720.96	782.95	834.32	876.28	908.54	931.13	944.05	947.32	940.04	19
20	645.90	720.73	782.68	834.03	875.99	908.25	930.84	943.76	947.03	939.75	20
21	645.73	720.50	782.41	833.74	875.70	907.96	930.55	943.47	946.74	939.46	21
22	645.56	720.27	782.14	833.45	875.41	907.67	930.26	943.18	946.45	939.17	22
23	645.39	720.04	781.87	833.16	875.12	907.38	929.97	942.89	946.16	938.88	23
24	645.22	719.81	781.60	832.87	874.83	907.09	929.68	942.60	945.87	938.59	24
25	645.05	719.58	781.33	832.58	874.54	906.80	929.39	942.31	945.58	938.30	25
26	644.88	719.35	781.06	832.29	874.25	906.51	929.10	942.02	945.29	938.01	26
27	644.71	719.12	780.79	832.00	873.96	906.22	928.81	941.73	945.00	937.72	27
28	644.54	718.89	780.52	831.71	873.67	905.93	928.52	941.44	944.71	937.43	28
29	644.37	718.66	780.25	831.42	873.38	905.64	928.23	941.15	944.42	937.14	29
30	644.20	718.43	779.98	831.13	873.09	905.35	927.94	940.86	944.13	936.85	30
31	644.03	718.20	779.71	830.84	872.80	905.06	927.65	940.57	943.84	936.56	31
32	643.86	717.97	779.44	830.55	872.51	904.77	927.36	940.28	943.55	936.27	32
33	643.69	717.74	779.17	830.26	872.22	904.48	927.07	939.99	943.26	935.98	33
34	643.52	717.51	778.90	829.97	871.93	904.19	926.78	939.70	942.97	935.69	34
35	643.35	717.28	778.63	829.68	871.64	903.90	926.49	939.41	942.68	935.40	35
36	643.18	717.05	778.36	829.39	871.35	903.61	926.20	939.12	942.39	935.11	36
37	643.01	716.82	778.09	829.10	871.06	903.32	925.91	938.83	942.10	934.82	37
38	642.84	716.59	777.82	828.81	870.77	903.03	925.62	938.54	941.81	934.53	38
39	642.67	716.36	777.55	828.52	870.48	902.74	925.33	938.25	941.52	934.24	39
40	642.50	716.13	777.28	828.23	870.19	902.45	925.04	937.96	941.23	933.95	40
41	642.33	715.90	777.01	827.94	869.90	902.16	924.75	937.67	940.94	933.66	41
42	642.16	715.67	776.74	827.65	869.61	901.87	924.46	937.38	940.65	933.37	42
43	641.99	715.44	776.47	827.36	869.32	901.58	924.17	937.09	940.36	933.08	43
44	641.82	715.21	776.20	827.07	869.03	901.29	923.88	936.80	940.07	932.79	44
45	641.65	714.98	775.93	826.78	868.74	901.00	923.59	936.51	939.78	932.50	45
46	641.48	714.75	775.66	826.49	868.45	900.71	923.30	936.22	939.49	932.21	46
47	641.31	714.52	775.39	826.20	868.16	900.42	923.01	935.93	939.20	931.92	47
48	641.14	714.29	775.12	825.91	867.87	900.13	922.72	935.64	938.91	931.63	48
49	640.97	714.06	774.85	825.62	867.58	899.84	922.43	935.35	938.62	931.34	49
50	640.80	713.83	774.58	825.33	867.29	899.55	922.14	935.06	938.33	931.05	50
51	640.63	713.60	774.31	825.04	867.00	899.26	921.85	934.77	938.04	930.76	51
52	640.46	713.37	774.04	824.75	866.71	898.97	921.56	934.48	937.75	930.47	52
53	640.29	713.14	773.77	824.46	866.42	898.68	921.27	934.19	937.46	930.18	53
54	640.12	712.91	773.50	824.17	866.13	898.39	920.98	933.90	937.17	929.89	54
55	639.95	712.68	773.23	823.88	865.84	898.10	920.69	933.61	936.88	929.60	55
56	639.78	712.45	772.96	823.59	865.55	897.81	920.40	933.32	936.59	929.31	56
57	639.61	712.22	772.69	823.30	865.26	897.52	920.11	933.03	936.30	929.02	57
58	639.44	711.99	772.42	823.01	864.97	897.23	919.82	932.74	936.01	928.73	58
59	639.27	711.76	772.15	822.72	864.68	896.94	919.53	932.45	935.72	928.44	59
60	639.10	711.53	771.88	822.43	864.39	896.65	919.24	932.16	935.43	928.15	60

The Anti-Gudermannian.

20°	21°	22°	23°	24°	25°	26°	27°	28°	29°	30°	31°
0	1389.30	1353.60	1418.63	1484.05	1549.99	1616.47	1683.52	1751.16	1819.44	1888.38	0'
1	1400.47	1354.76	1419.72	1485.13	1551.10	1617.58	1684.64	1752.29	1820.58	1889.53	1
2	1411.34	1355.82	1420.80	1486.22	1552.20	1618.70	1685.76	1753.43	1821.72	1890.67	2
3	1422.41	1356.92	1421.89	1487.31	1553.31	1619.81	1686.83	1754.56	1822.87	1891.81	3
4	1433.48	1358.00	1422.98	1488.41	1554.41	1620.93	1687.91	1755.69	1824.01	1892.95	4
5	1444.55	1359.08	1424.05	1489.53	1555.51	1622.04	1689.13	1756.83	1825.16	1894.15	5
6	1455.63	1360.16	1425.15	1490.65	1556.62	1623.15	1690.25	1757.95	1826.30	1895.31	6
7	1466.70	1361.24	1426.24	1491.72	1557.72	1624.26	1691.36	1759.09	1827.44	1896.46	7
8	1477.77	1362.32	1427.32	1492.82	1558.83	1625.38	1692.50	1760.23	1828.59	1897.62	8
9	1488.84	1363.40	1428.41	1493.91	1559.93	1626.49	1693.62	1761.35	1829.73	1898.78	9
10	1499.91	1364.48	1429.50	1495.01	1561.04	1627.61	1694.75	1762.50	1830.88	1899.93	10
11	1500.00	1365.56	1430.59	1496.11	1562.14	1628.72	1695.87	1763.63	1832.02	1901.09	11
12	1500.00	1366.64	1431.68	1497.20	1563.25	1629.84	1696.99	1764.77	1833.17	1902.23	12
13	1501.13	1367.72	1432.76	1498.30	1564.35	1630.95	1698.12	1765.90	1834.32	1903.40	13
14	1502.26	1368.80	1433.85	1499.40	1565.46	1632.06	1699.25	1767.04	1835.46	1904.56	14
15	1503.38	1369.88	1434.94	1500.49	1566.56	1633.18	1700.37	1768.17	1836.61	1905.72	15
16	1504.51	1370.96	1436.03	1501.59	1567.67	1634.29	1701.50	1769.31	1837.75	1906.88	16
17	1505.64	1372.04	1437.12	1502.69	1568.77	1635.41	1702.63	1770.44	1838.90	1908.03	17
18	1506.77	1373.12	1438.21	1503.78	1569.88	1636.52	1703.75	1771.58	1840.05	1909.19	18
19	1507.90	1374.20	1439.30	1504.88	1570.99	1637.64	1704.87	1772.71	1841.19	1910.35	19
20	1509.04	1375.28	1440.38	1505.98	1572.09	1638.76	1705.99	1773.85	1842.34	1911.51	20
21	1510.17	1376.35	1441.47	1507.08	1573.20	1639.87	1707.12	1774.98	1843.49	1912.67	21
22	1511.30	1377.43	1442.56	1508.17	1574.31	1640.99	1708.25	1776.12	1844.64	1913.83	22
23	1512.43	1378.52	1443.65	1509.27	1575.41	1642.10	1709.37	1777.26	1845.78	1914.98	23
24	1513.56	1379.61	1444.74	1510.37	1576.52	1643.22	1710.50	1778.39	1846.93	1916.14	24
25	1514.69	1380.69	1445.83	1511.47	1577.63	1644.34	1711.63	1779.53	1848.08	1917.30	25
26	1515.82	1381.77	1446.92	1512.57	1578.73	1645.45	1712.75	1780.67	1849.23	1918.46	26
27	1516.95	1382.85	1448.01	1513.67	1579.84	1646.57	1713.88	1781.81	1850.37	1919.62	27
28	1518.08	1383.93	1449.10	1514.76	1580.95	1647.69	1715.01	1782.94	1851.52	1920.78	28
29	1519.21	1385.02	1450.19	1515.86	1582.06	1648.80	1716.14	1784.08	1852.67	1921.94	29
30	1520.34	1386.10	1451.28	1516.96	1583.17	1649.92	1717.26	1785.22	1853.82	1923.10	30
31	1521.47	1387.18	1452.37	1518.06	1584.27	1651.03	1718.39	1786.36	1854.97	1924.26	31
32	1522.60	1388.26	1453.46	1519.16	1585.38	1652.15	1719.52	1787.50	1856.12	1925.43	32
33	1523.73	1389.35	1454.55	1520.26	1586.49	1653.27	1720.65	1788.63	1857.27	1926.59	33
34	1524.86	1390.43	1455.64	1521.36	1587.60	1654.39	1721.77	1789.77	1858.42	1927.75	34
35	1525.99	1391.51	1456.73	1522.46	1588.71	1655.51	1722.90	1790.91	1859.57	1928.91	35
36	1527.12	1392.59	1457.83	1523.56	1589.83	1656.63	1724.03	1792.05	1860.72	1930.07	36
37	1528.25	1393.68	1458.92	1524.66	1590.94	1657.75	1725.16	1793.19	1861.87	1931.23	37
38	1529.38	1394.76	1460.01	1525.76	1592.05	1658.87	1726.29	1794.33	1863.02	1932.40	38
39	1530.51	1395.84	1461.10	1526.86	1593.16	1659.99	1727.42	1795.47	1864.17	1933.56	39
40	1531.64	1396.93	1462.19	1527.96	1594.27	1661.10	1728.55	1796.61	1865.32	1934.72	40
41	1532.77	1398.01	1463.28	1529.06	1595.38	1662.22	1729.67	1797.75	1866.47	1935.88	41
42	1533.90	1399.10	1464.38	1530.16	1596.47	1663.34	1730.80	1798.89	1867.62	1937.05	42
43	1535.03	1400.18	1465.47	1531.26	1597.58	1664.46	1731.93	1800.03	1868.77	1938.21	43
44	1536.16	1401.26	1466.56	1532.36	1598.69	1665.58	1733.06	1801.17	1869.92	1939.37	44
45	1537.29	1402.35	1467.65	1533.46	1599.80	1666.70	1734.19	1802.31	1871.08	1940.54	45
46	1538.42	1403.43	1468.75	1534.56	1600.91	1667.82	1735.32	1803.45	1872.23	1941.70	46
47	1539.55	1404.52	1469.84	1535.66	1602.02	1668.94	1736.45	1804.59	1873.38	1942.85	47
48	1540.68	1405.60	1470.93	1536.77	1603.13	1670.06	1737.58	1805.73	1874.53	1944.03	48
49	1541.81	1406.69	1472.02	1537.87	1604.24	1671.18	1738.71	1806.87	1875.69	1945.19	49
50	1542.94	1407.77	1473.12	1538.97	1605.35	1672.30	1739.84	1808.01	1876.84	1946.35	50
51	1544.07	1408.85	1474.21	1540.07	1606.46	1673.42	1740.98	1809.15	1877.99	1947.51	51
52	1545.20	1409.94	1475.30	1541.17	1607.58	1674.54	1742.11	1810.30	1879.14	1948.67	52
53	1546.33	1411.03	1476.40	1542.27	1608.69	1675.66	1743.24	1811.44	1880.30	1949.83	53
54	1547.46	1412.11	1477.49	1543.38	1609.80	1676.77	1744.37	1812.58	1881.45	1951.02	54
55	1548.59	1413.20	1478.59	1544.48	1610.91	1677.89	1745.50	1813.72	1882.60	1952.18	55
56	1549.72	1414.28	1479.68	1545.58	1612.02	1679.00	1746.63	1814.85	1883.75	1953.35	56
57	1550.85	1415.37	1480.77	1546.69	1613.13	1680.12	1747.76	1815.99	1884.91	1954.51	57
58	1551.98	1416.45	1481.87	1547.79	1614.24	1681.24	1748.89	1817.15	1886.07	1955.68	58
59	1553.11	1417.54	1482.96	1548.89	1615.35	1682.36	1750.03	1818.29	1887.23	1956.85	59
60	1554.24	1418.63	1484.05	1549.99	1616.47	1683.52	1751.16	1819.44	1888.38	1958.01	60

The Anti-Gödelmannian.

The Anti-Gaullermannian.

100	11"	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"
1	2701.60	2701.71	2701.81	2701.91	2702.01	2702.11	2702.21	2702.31	2702.41	2702.51	2702.61
2	2702.62	2702.72	2702.82	2702.92	2703.02	2703.12	2703.22	2703.32	2703.42	2703.52	2703.62
3	2703.63	2703.73	2703.83	2703.93	2704.03	2704.13	2704.23	2704.33	2704.43	2704.53	2704.63
4	2704.64	2704.74	2704.84	2704.94	2705.04	2705.14	2705.24	2705.34	2705.44	2705.54	2705.64
5	2705.65	2705.75	2705.85	2705.95	2706.05	2706.15	2706.25	2706.35	2706.45	2706.55	2706.65
6	2706.66	2706.76	2706.86	2706.96	2707.06	2707.16	2707.26	2707.36	2707.46	2707.56	2707.66
7	2707.67	2707.77	2707.87	2707.97	2708.07	2708.17	2708.27	2708.37	2708.47	2708.57	2708.67
8	2708.68	2708.78	2708.88	2708.98	2709.08	2709.18	2709.28	2709.38	2709.48	2709.58	2709.68
9	2709.69	2709.79	2709.89	2709.99	2710.09	2710.19	2710.29	2710.39	2710.49	2710.59	2710.69
10	2710.70	2710.80	2710.90	2711.00	2711.10	2711.20	2711.30	2711.40	2711.50	2711.60	2711.70
11	2711.71	2711.81	2711.91	2712.01	2712.11	2712.21	2712.31	2712.41	2712.51	2712.61	2712.71
12	2712.72	2712.82	2712.92	2713.02	2713.12	2713.22	2713.32	2713.42	2713.52	2713.62	2713.72
13	2713.73	2713.83	2713.93	2714.03	2714.13	2714.23	2714.33	2714.43	2714.53	2714.63	2714.73
14	2714.74	2714.84	2714.94	2715.04	2715.14	2715.24	2715.34	2715.44	2715.54	2715.64	2715.74
15	2715.75	2715.85	2715.95	2716.05	2716.15	2716.25	2716.35	2716.45	2716.55	2716.65	2716.75
16	2716.76	2716.86	2716.96	2717.06	2717.16	2717.26	2717.36	2717.46	2717.56	2717.66	2717.76
17	2717.77	2717.87	2717.97	2718.07	2718.17	2718.27	2718.37	2718.47	2718.57	2718.67	2718.77
18	2718.78	2718.88	2718.98	2719.08	2719.18	2719.28	2719.38	2719.48	2719.58	2719.68	2719.78
19	2719.79	2719.89	2719.99	2720.09	2720.19	2720.29	2720.39	2720.49	2720.59	2720.69	2720.79
20	2720.80	2720.90	2721.00	2721.10	2721.20	2721.30	2721.40	2721.50	2721.60	2721.70	2721.80
21	2721.81	2721.91	2722.01	2722.11	2722.21	2722.31	2722.41	2722.51	2722.61	2722.71	2722.81
22	2722.82	2722.92	2723.02	2723.12	2723.22	2723.32	2723.42	2723.52	2723.62	2723.72	2723.82
23	2723.83	2723.93	2724.03	2724.13	2724.23	2724.33	2724.43	2724.53	2724.63	2724.73	2724.83
24	2724.84	2724.94	2725.04	2725.14	2725.24	2725.34	2725.44	2725.54	2725.64	2725.74	2725.84
25	2725.85	2725.95	2726.05	2726.15	2726.25	2726.35	2726.45	2726.55	2726.65	2726.75	2726.85
26	2726.86	2726.96	2727.06	2727.16	2727.26	2727.36	2727.46	2727.56	2727.66	2727.76	2727.86
27	2727.87	2727.97	2728.07	2728.17	2728.27	2728.37	2728.47	2728.57	2728.67	2728.77	2728.87
28	2728.88	2728.98	2729.08	2729.18	2729.28	2729.38	2729.48	2729.58	2729.68	2729.78	2729.88
29	2729.89	2729.99	2730.09	2730.19	2730.29	2730.39	2730.49	2730.59	2730.69	2730.79	2730.89
30	2730.90	2731.00	2731.10	2731.20	2731.30	2731.40	2731.50	2731.60	2731.70	2731.80	2731.90
31	2731.91	2732.01	2732.11	2732.21	2732.31	2732.41	2732.51	2732.61	2732.71	2732.81	2732.91
32	2732.92	2733.02	2733.12	2733.22	2733.32	2733.42	2733.52	2733.62	2733.72	2733.82	2733.92
33	2733.93	2734.03	2734.13	2734.23	2734.33	2734.43	2734.53	2734.63	2734.73	2734.83	2734.93
34	2734.94	2735.04	2735.14	2735.24	2735.34	2735.44	2735.54	2735.64	2735.74	2735.84	2735.94
35	2735.95	2736.05	2736.15	2736.25	2736.35	2736.45	2736.55	2736.65	2736.75	2736.85	2736.95
36	2736.96	2737.06	2737.16	2737.26	2737.36	2737.46	2737.56	2737.66	2737.76	2737.86	2737.96
37	2737.97	2738.07	2738.17	2738.27	2738.37	2738.47	2738.57	2738.67	2738.77	2738.87	2738.97
38	2738.98	2739.08	2739.18	2739.28	2739.38	2739.48	2739.58	2739.68	2739.78	2739.88	2739.98
39	2739.99	2740.09	2740.19	2740.29	2740.39	2740.49	2740.59	2740.69	2740.79	2740.89	2740.99
40	2741.00	2741.10	2741.20	2741.30	2741.40	2741.50	2741.60	2741.70	2741.80	2741.90	2742.00
41	2742.01	2742.11	2742.21	2742.31	2742.41	2742.51	2742.61	2742.71	2742.81	2742.91	2743.01
42	2743.02	2743.12	2743.22	2743.32	2743.42	2743.52	2743.62	2743.72	2743.82	2743.92	2744.02
43	2744.03	2744.13	2744.23	2744.33	2744.43	2744.53	2744.63	2744.73	2744.83	2744.93	2745.03
44	2745.04	2745.14	2745.24	2745.34	2745.44	2745.54	2745.64	2745.74	2745.84	2745.94	2746.04
45	2746.05	2746.15	2746.25	2746.35	2746.45	2746.55	2746.65	2746.75	2746.85	2746.95	2747.05
46	2747.06	2747.16	2747.26	2747.36	2747.46	2747.56	2747.66	2747.76	2747.86	2747.96	2748.06
47	2748.07	2748.17	2748.27	2748.37	2748.47	2748.57	2748.67	2748.77	2748.87	2748.97	2749.07
48	2749.08	2749.18	2749.28	2749.38	2749.48	2749.58	2749.68	2749.78	2749.88	2749.98	2750.08
49	2750.09	2750.19	2750.29	2750.39	2750.49	2750.59	2750.69	2750.79	2750.89	2750.99	2751.09
50	2751.10	2751.20	2751.30	2751.40	2751.50	2751.60	2751.70	2751.80	2751.90	2752.00	2752.10
51	2752.11	2752.21	2752.31	2752.41	2752.51	2752.61	2752.71	2752.81	2752.91	2753.01	2753.11
52	2753.12	2753.22	2753.32	2753.42	2753.52	2753.62	2753.72	2753.82	2753.92	2754.02	2754.12
53	2754.13	2754.23	2754.33	2754.43	2754.53	2754.63	2754.73	2754.83	2754.93	2755.03	2755.13
54	2755.14	2755.24	2755.34	2755.44	2755.54	2755.64	2755.74	2755.84	2755.94	2756.04	2756.14
55	2756.15	2756.25	2756.35	2756.45	2756.55	2756.65	2756.75	2756.85	2756.95	2757.05	2757.15
56	2757.16	2757.26	2757.36	2757.46	2757.56	2757.66	2757.76	2757.86	2757.96	2758.06	2758.16
57	2758.17	2758.27	2758.37	2758.47	2758.57	2758.67	2758.77	2758.87	2758.97	2759.07	2759.17
58	2759.18	2759.28	2759.38	2759.48	2759.58	2759.68	2759.78	2759.88	2759.98	2760.08	2760.18
59	2760.19	2760.29	2760.39	2760.49	2760.59	2760.69	2760.79	2760.89	2760.99	2761.09	2761.19
60	2761.20	2761.30	2761.40	2761.50	2761.60	2761.70	2761.80	2761.90	2762.00	2762.10	2762.20

BRITISH TABLE

The Anti-Gudermannian.

deg	51°	52°	53°	54°	55°	56°	57°	58°	59°	60°	deg
0	357.88.81	366.5.19	375.3.76	384.1.64	392.7.07	401.3.00	410.2.04	419.3.30	428.0.34	437.27.37	0
1	3579.40	3666.84	3756.42	3846.34	3936.71	4027.69	4118.46	4209.39	4301.18	4392.37	1
2	3571.09	3668.48	3759.09	3849.04	3939.40	4030.48	4121.46	4212.46	4303.43	4394.37	2
3	3572.58	3670.07	3760.75	3850.74	3940.72	4031.70	4122.68	4213.68	4304.65	4395.54	3
4	3573.17	3671.70	3762.41	3852.45	3942.45	4033.45	4124.68	4215.68	4306.65	4397.54	4
5	3573.70	3673.34	3764.08	3854.15	3944.10	4035.15	4126.68	4217.68	4308.65	4399.54	5
6	3578.35	3674.98	3773.74	3857.85	3947.85	4038.85	4129.68	4220.68	4311.65	4401.54	6
7	3579.04	3676.58	3775.44	3859.55	3949.55	4040.55	4131.68	4222.68	4313.65	4403.54	7
8	3581.54	3678.21	3777.08	3861.27	3951.27	4042.27	4133.68	4224.68	4315.65	4405.54	8
9	3583.13	3679.84	3778.74	3862.98	3952.98	4043.98	4135.68	4226.68	4317.65	4407.54	9
10	3584.73	3681.47	3780.41	3864.68	3954.68	4045.68	4137.68	4228.68	4319.65	4409.54	10
11	3585.32	3683.10	3782.08	3866.39	3956.39	4047.39	4139.68	4230.68	4321.65	4411.54	11
12	3587.02	3684.73	3783.75	3868.10	3958.10	4049.10	4141.68	4232.68	4323.65	4413.54	12
13	3589.51	3686.36	3785.44	3869.81	3959.81	4050.81	4143.68	4234.68	4325.65	4415.54	13
14	3591.11	3687.99	3787.09	3871.52	3961.52	4052.52	4145.68	4236.68	4327.65	4417.54	14
15	3592.71	3689.62	3788.70	3873.23	3963.23	4054.23	4147.68	4238.68	4329.65	4419.54	15
16	3594.30	3691.25	3790.43	3874.95	3964.95	4055.95	4149.68	4240.68	4331.65	4421.54	16
17	3595.90	3692.88	3792.10	3876.66	3966.66	4057.66	4151.68	4242.68	4333.65	4423.54	17
18	3597.50	3694.53	3793.78	3878.37	3968.37	4059.37	4153.68	4244.68	4335.65	4425.54	18
19	3599.10	3696.17	3795.45	3880.08	3970.08	4061.08	4155.68	4246.68	4337.65	4427.54	19
20	3600.70	3697.80	3797.12	3881.79	3971.79	4062.79	4157.68	4248.68	4339.65	4429.54	20
21	3602.30	3699.44	3798.80	3883.50	3973.50	4064.50	4159.68	4250.68	4341.65	4431.54	21
22	3603.90	3701.08	3800.47	3885.21	3975.21	4066.21	4161.68	4252.68	4343.65	4433.54	22
23	3605.50	3702.71	3802.15	3886.92	3976.92	4067.92	4163.68	4254.68	4345.65	4435.54	23
24	3607.10	3704.35	3803.83	3888.63	3978.63	4069.63	4165.68	4256.68	4347.65	4437.54	24
25	3608.71	3705.98	3805.50	3890.34	3980.34	4071.34	4167.68	4258.68	4349.65	4439.54	25
26	3610.32	3707.62	3807.18	3892.05	3982.05	4073.05	4169.68	4260.68	4351.65	4441.54	26
27	3611.93	3709.25	3808.85	3893.76	3983.76	4074.76	4171.68	4262.68	4353.65	4443.54	27
28	3613.54	3710.89	3810.54	3895.47	3985.47	4076.47	4173.68	4264.68	4355.65	4445.54	28
29	3615.15	3712.52	3812.22	3897.18	3987.18	4078.18	4175.68	4266.68	4357.65	4447.54	29
30	3616.76	3714.16	3813.90	3898.89	3988.89	4079.89	4177.68	4268.68	4359.65	4449.54	30
31	3618.37	3715.81	3815.58	3900.60	3990.60	4081.60	4179.68	4270.68	4361.65	4451.54	31
32	3619.98	3717.45	3817.27	3902.31	3992.31	4083.31	4181.68	4272.68	4363.65	4453.54	32
33	3621.59	3719.10	3818.95	3904.02	3994.02	4085.02	4183.68	4274.68	4365.65	4455.54	33
34	3623.20	3720.74	3820.64	3905.73	3995.73	4086.73	4185.68	4276.68	4367.65	4457.54	34
35	3624.81	3722.38	3822.32	3907.44	3997.44	4088.44	4187.68	4278.68	4369.65	4459.54	35
36	3626.42	3724.02	3824.01	3909.15	3999.15	4090.15	4189.68	4280.68	4371.65	4461.54	36
37	3628.03	3725.66	3825.70	3910.86	4000.86	4091.86	4191.68	4282.68	4373.65	4463.54	37
38	3629.64	3727.30	3827.39	3912.57	4002.57	4093.57	4193.68	4284.68	4375.65	4465.54	38
39	3631.25	3728.94	3829.08	3914.28	4004.28	4095.28	4195.68	4286.68	4377.65	4467.54	39
40	3632.86	3730.58	3830.77	3915.99	4005.99	4096.99	4197.68	4288.68	4379.65	4469.54	40
41	3634.47	3732.22	3832.46	3917.70	4007.70	4098.70	4199.68	4290.68	4381.65	4471.54	41
42	3636.08	3733.86	3834.15	3919.41	4009.41	4100.41	4201.68	4292.68	4383.65	4473.54	42
43	3637.69	3735.50	3835.84	3921.12	4011.12	4102.12	4203.68	4294.68	4385.65	4475.54	43
44	3639.30	3737.14	3837.53	3922.83	4012.83	4103.83	4205.68	4296.68	4387.65	4477.54	44
45	3640.91	3738.78	3839.22	3924.54	4014.54	4105.54	4207.68	4298.68	4389.65	4479.54	45
46	3642.52	3740.42	3840.91	3926.25	4016.25	4107.25	4209.68	4300.68	4391.65	4481.54	46
47	3644.13	3742.06	3842.60	3927.96	4017.96	4108.96	4211.68	4302.68	4393.65	4483.54	47
48	3645.74	3743.70	3844.29	3929.67	4019.67	4110.67	4213.68	4304.68	4395.65	4485.54	48
49	3647.35	3745.34	3845.98	3931.38	4021.38	4112.38	4215.68	4306.68	4397.65	4487.54	49
50	3648.96	3746.98	3847.67	3933.09	4023.09	4114.09	4217.68	4308.68	4399.65	4489.54	50
51	3650.57	3748.62	3849.36	3934.80	4024.80	4115.80	4219.68	4310.68	4401.65	4491.54	51
52	3652.18	3750.26	3851.05	3936.51	4026.51	4117.51	4221.68	4312.68	4403.65	4493.54	52
53	3653.79	3751.90	3852.74	3938.22	4028.22	4119.22	4223.68	4314.68	4405.65	4495.54	53
54	3655.40	3753.54	3854.43	3939.93	4029.93	4120.93	4225.68	4316.68	4407.65	4497.54	54
55	3657.01	3755.18	3856.12	3941.64	4031.64	4122.64	4227.68	4318.68	4409.65	4499.54	55
56	3658.62	3756.82	3857.81	3943.35	4033.35	4124.35	4229.68	4320.68	4411.65	4501.54	56
57	3660.23	3758.46	3859.50	3945.06	4035.06	4126.06	4231.68	4322.68	4413.65	4503.54	57
58	3661.84	3760.10	3861.19	3946.77	4036.77	4127.77	4233.68	4324.68	4415.65	4505.54	58
59	3663.45	3761.74	3862.88	3948.48	4038.48	4129.48	4235.68	4326.68	4417.65	4507.54	59
60	3665.06	3763.38	3864.57	3950.19	4040.19	4131.19	4237.68	4328.68	4419.65	4509.54	60

The Anti-Gudermannian.

61°	62°	63°	64°	65°	66°	67°	68°	69°	70°	61°	
0	4640.23	4774.08	4904.94	5039.42	5178.81	5323.51	5474.01	5630.82	5794.36	5965.92	0
1	4651.20	4777.11	4907.14	5041.70	5181.18	5325.67	5476.57	5633.49	5797.15	5968.84	1
2	4653.33	4779.25	4909.35	5043.99	5183.54	5328.43	5479.13	5636.10	5800.14	5971.77	2
3	4655.44	4781.38	4911.55	5046.47	5185.91	5330.60	5481.69	5638.84	5802.94	5974.70	3
4	4657.49	4783.51	4913.71	5048.95	5188.29	5333.76	5484.26	5641.51	5805.74	5977.63	4
5	4659.53	4785.65	4915.87	5051.85	5190.66	5335.83	5486.83	5644.19	5808.54	5980.57	5
6	4661.64	4787.79	4918.08	5054.14	5193.03	5337.78	5489.40	5646.86	5811.34	5983.50	6
7	4663.69	4789.92	4920.30	5056.43	5195.41	5340.77	5491.97	5649.56	5814.15	5986.44	7
8	4665.70	4792.06	4922.60	5058.72	5197.79	5343.24	5494.54	5652.24	5816.95	5989.38	8
9	4667.83	4794.20	4924.81	5061.01	5200.17	5345.71	5497.11	5654.93	5819.76	5992.33	9
10	4669.91	4796.34	4927.03	5063.30	5202.55	5348.18	5499.69	5657.61	5822.57	5995.27	10
11	4671.98	4798.49	4929.24	5065.60	5204.93	5350.66	5502.27	5660.30	5825.39	5998.20	11
12	4674.03	4800.63	4931.46	5067.90	5207.31	5353.14	5504.85	5663.00	5828.20	6001.17	12
13	4676.13	4802.77	4933.68	5070.19	5209.70	5355.61	5507.43	5665.69	5831.02	6004.13	13
14	4678.21	4804.91	4935.89	5072.49	5212.08	5358.09	5510.01	5668.38	5833.84	6007.08	14
15	4680.29	4807.07	4938.12	5074.80	5214.47	5360.56	5512.60	5671.08	5836.66	6010.04	15
16	4682.37	4809.21	4940.34	5077.10	5216.85	5363.05	5515.18	5673.78	5839.48	6013.00	16
17	4684.43	4811.36	4942.57	5079.40	5219.25	5365.55	5517.77	5676.48	5842.31	6015.95	17
18	4686.53	4813.51	4944.79	5081.71	5221.64	5368.03	5520.36	5679.19	5845.15	6018.93	18
19	4688.61	4815.67	4947.02	5084.01	5224.04	5370.52	5522.95	5681.89	5847.99	6021.90	19
20	4690.70	4817.82	4949.24	5086.32	5226.43	5373.01	5525.55	5684.60	5850.79	6024.87	20
21	4692.78	4819.97	4951.47	5088.63	5228.83	5375.50	5528.14	5687.31	5853.63	6027.84	21
22	4694.87	4822.13	4953.70	5090.94	5231.23	5378.00	5530.74	5690.02	5856.47	6030.81	22
23	4696.90	4824.29	4955.94	5093.25	5233.63	5380.49	5533.31	5692.73	5859.31	6033.79	23
24	4698.95	4826.44	4958.17	5095.57	5236.03	5382.99	5535.91	5695.45	5862.15	6036.77	24
25	4701.14	4828.60	4960.40	5097.88	5238.43	5385.49	5538.53	5698.17	5864.99	6039.75	25
26	4703.23	4830.76	4962.64	5100.20	5240.84	5387.99	5541.15	5700.89	5867.84	6042.74	26
27	4705.32	4832.93	4964.87	5102.52	5243.24	5390.49	5543.76	5703.61	5870.69	6045.73	27
28	4707.41	4835.09	4967.11	5104.84	5245.65	5392.99	5546.37	5706.33	5873.54	6048.72	28
29	4709.51	4837.25	4969.35	5107.16	5248.06	5395.50	5548.98	5709.05	5876.39	6051.71	29
30	4711.60	4839.42	4971.59	5109.48	5250.47	5398.01	5551.59	5711.78	5879.24	6054.71	30
31	4713.70	4841.58	4973.83	5111.80	5252.88	5400.52	5554.20	5714.51	5882.10	6057.70	31
32	4715.79	4843.75	4976.08	5114.13	5255.30	5403.03	5556.82	5717.25	5884.96	6060.70	32
33	4717.89	4845.92	4978.32	5116.45	5257.71	5405.54	5559.44	5719.98	5887.82	6063.71	33
34	4719.90	4848.09	4980.57	5118.78	5260.13	5408.05	5562.07	5722.71	5890.68	6066.71	34
35	4722.00	4850.26	4982.84	5121.11	5262.55	5410.57	5564.68	5725.45	5893.55	6069.71	35
36	4724.10	4852.43	4985.06	5123.44	5264.97	5413.08	5567.30	5728.19	5896.41	6072.72	36
37	4726.20	4854.61	4987.31	5125.77	5267.39	5415.60	5569.93	5730.93	5899.28	6075.73	37
38	4728.30	4856.78	4989.56	5128.11	5269.81	5418.12	5572.55	5733.68	5902.15	6078.75	38
39	4730.41	4858.96	4991.82	5130.44	5272.23	5420.64	5575.18	5736.42	5905.03	6081.76	39
40	4732.61	4861.13	4994.07	5132.78	5274.66	5423.17	5577.81	5739.17	5907.90	6084.78	40
41	4734.72	4863.31	4996.33	5135.11	5277.09	5425.69	5580.44	5741.92	5910.78	6087.81	41
42	4736.83	4865.49	4998.58	5137.45	5279.52	5428.22	5583.08	5744.67	5913.67	6090.83	42
43	4738.94	4867.67	5000.84	5139.79	5281.95	5430.75	5585.71	5747.43	5916.55	6093.85	43
44	4741.05	4869.86	5003.10	5142.14	5284.38	5433.28	5588.35	5750.19	5919.44	6096.86	44
45	4743.16	4872.04	5005.36	5144.48	5286.82	5435.81	5590.99	5752.94	5922.32	6099.88	45
46	4745.28	4874.22	5007.62	5146.83	5289.25	5438.35	5593.61	5755.70	5925.22	6102.95	46
47	4747.39	4876.41	5009.88	5149.17	5291.69	5440.88	5596.28	5758.46	5928.11	6105.90	47
48	4749.51	4878.60	5012.15	5151.52	5294.13	5443.42	5598.93	5761.23	5931.00	6108.93	48
49	4751.63	4880.79	5014.41	5153.87	5296.57	5445.96	5601.57	5763.99	5933.90	6112.07	49
50	4753.74	4882.98	5016.68	5156.22	5299.01	5448.50	5604.22	5766.76	5936.80	6115.12	50
51	4755.85	4885.17	5018.94	5158.57	5301.45	5451.05	5606.87	5769.53	5939.70	6118.16	51
52	4757.98	4887.36	5021.21	5160.93	5303.90	5453.59	5609.53	5772.31	5942.61	6121.21	52
53	4760.10	4889.55	5023.48	5163.28	5306.34	5456.14	5612.18	5775.08	5945.51	6124.26	53
54	4762.23	4891.75	5025.76	5165.64	5308.79	5458.68	5614.84	5777.86	5948.42	6127.32	54
55	4764.35	4893.94	5028.03	5167.99	5311.24	5461.23	5617.50	5780.64	5951.33	6130.38	55
56	4766.47	4896.14	5030.30	5170.36	5313.69	5463.78	5620.16	5783.42	5954.24	6133.44	56
57	4768.60	4898.34	5032.58	5172.72	5316.15	5466.34	5622.82	5786.20	5957.16	6136.50	57
58	4770.73	4900.54	5034.86	5175.08	5318.60	5468.89	5625.49	5788.98	5960.08	6139.56	58
59	4772.85	4902.74	5037.14	5177.44	5321.06	5471.45	5628.15	5791.77	5963.00	6142.63	59
60	4774.98	4904.94	5039.42	5178.81	5323.51	5474.01	5630.82	5794.36	5965.92	6145.70	60

SYNTHETIC TABLE

The Anti-Gudermannian.

gd u	71°	72°	73°	74°	75°	76°	77°	78°	79°	80°	gd u
0	6145.90	6134.84	6124.12	6113.74	6103.34	7410.07	7407.21	7404.37	7401.51	7398.65	0
1	6148.77	6138.08	6127.85	6117.37	6106.80	7414.30	7411.66	7409.03	7406.40	7403.76	1
2	6151.58	6141.32	6131.27	6120.97	6110.49	7418.35	7415.81	7413.18	7410.54	7407.90	2
3	6154.33	6144.50	6134.70	6124.20	6113.61	7422.40	7419.87	7417.24	7414.60	7411.96	3
4	6157.01	6147.81	6138.13	6127.63	6116.95	7426.64	7424.11	7421.48	7418.84	7416.20	4
5	6159.69	6151.05	6141.57	6131.07	6120.49	7430.89	7428.36	7425.73	7423.09	7420.45	5
6	6162.38	6154.31	6145.04	6134.54	6123.96	7435.06	7432.53	7429.90	7427.26	7424.62	6
7	6165.07	6157.50	6148.43	6137.93	6127.35	7439.12	7436.59	7433.96	7431.32	7428.68	7
8	6167.74	6160.82	6151.85	6141.35	6130.77	7443.20	7440.67	7438.04	7435.40	7432.76	8
9	6170.41	6164.08	6155.11	6144.61	6134.03	7447.27	7444.74	7442.11	7439.47	7436.83	9
10	6173.08	6167.15	6158.18	6147.68	6137.10	7451.35	7448.82	7446.19	7443.55	7440.91	10
11	6175.75	6170.01	6161.04	6150.54	6139.96	7455.43	7452.90	7450.27	7447.63	7444.99	11
12	6178.42	6173.38	6164.41	6153.91	6143.33	7459.51	7456.98	7454.35	7451.71	7449.07	12
13	6181.09	6176.45	6167.48	6156.98	6146.40	7463.60	7461.07	7458.44	7455.80	7453.16	13
14	6183.76	6179.52	6170.55	6160.05	6149.47	7467.68	7465.15	7462.52	7459.88	7457.24	14
15	6186.43	6182.59	6173.62	6163.12	6152.54	7471.77	7469.24	7466.61	7463.97	7461.33	15
16	6189.10	6185.66	6176.69	6166.19	6155.61	7475.85	7473.32	7470.69	7468.05	7465.41	16
17	6191.77	6188.33	6179.36	6168.86	6158.28	7479.94	7477.41	7474.78	7472.14	7469.50	17
18	6194.44	6191.00	6182.03	6171.53	6161.15	7484.02	7481.49	7478.86	7476.22	7473.58	18
19	6197.11	6194.07	6185.10	6174.60	6164.22	7488.11	7485.58	7482.95	7480.31	7477.67	19
20	6200.00	6200.00	6200.00	6200.00	6200.00	7492.20	7489.67	7487.04	7484.40	7481.76	20
21	6202.67	6203.44	6204.47	6205.49	6206.51	7496.29	7493.76	7491.13	7488.49	7485.85	21
22	6205.34	6206.51	6207.84	6209.16	6210.48	7500.38	7497.85	7495.22	7492.58	7489.94	22
23	6208.01	6209.58	6211.21	6212.83	6214.45	7504.47	7501.94	7499.31	7496.67	7494.03	23
24	6210.68	6212.55	6214.38	6216.20	6218.02	7508.56	7506.03	7503.40	7500.76	7498.12	24
25	6213.35	6215.52	6217.65	6219.77	6221.89	7512.65	7510.12	7507.49	7504.85	7502.21	25
26	6216.02	6218.39	6220.72	6223.04	6225.36	7516.74	7514.21	7511.58	7508.94	7506.30	26
27	6218.69	6221.26	6223.79	6226.31	6228.83	7520.83	7518.30	7515.67	7513.03	7510.39	27
28	6221.36	6224.13	6226.86	6229.58	6232.30	7524.92	7522.39	7519.76	7517.12	7514.48	28
29	6224.03	6226.90	6229.83	6232.75	6235.67	7529.01	7526.48	7523.85	7521.21	7518.57	29
30	6226.70	6229.77	6232.80	6235.82	6238.84	7533.10	7530.57	7527.94	7525.30	7522.66	30
31	6229.37	6232.64	6235.87	6239.09	6242.31	7537.19	7534.66	7532.03	7529.39	7526.75	31
32	6232.04	6235.51	6238.94	6242.36	6245.78	7541.28	7538.75	7536.12	7533.48	7530.84	32
33	6234.71	6238.38	6241.91	6245.33	6248.75	7545.37	7542.84	7540.21	7537.57	7534.93	33
34	6237.38	6241.25	6245.08	6248.90	6252.72	7549.46	7546.93	7544.30	7541.66	7539.02	34
35	6240.05	6244.12	6248.15	6252.17	6256.19	7553.55	7551.02	7548.39	7545.75	7543.11	35
36	6242.72	6246.99	6251.22	6255.44	6259.66	7557.64	7555.11	7552.48	7549.84	7547.20	36
37	6245.39	6250.06	6254.29	6258.51	6262.73	7561.73	7559.20	7556.57	7553.93	7551.29	37
38	6248.06	6252.93	6257.16	6261.38	6265.60	7565.82	7563.29	7560.66	7558.02	7555.38	38
39	6250.73	6255.90	6260.33	6264.75	6269.17	7569.91	7567.38	7564.75	7562.11	7559.47	39
40	6253.40	6258.87	6263.50	6268.12	6272.74	7574.00	7571.47	7568.84	7566.20	7563.56	40
41	6256.07	6261.74	6266.57	6271.39	6276.21	7578.09	7575.56	7572.93	7570.29	7567.65	41
42	6258.74	6264.61	6269.64	6274.66	6279.68	7582.18	7579.65	7577.02	7574.38	7571.74	42
43	6261.41	6267.48	6272.71	6277.93	6283.15	7586.27	7583.74	7581.11	7578.47	7575.83	43
44	6264.08	6270.35	6275.78	6281.20	6286.62	7590.36	7587.83	7585.20	7582.56	7579.92	44
45	6266.75	6273.22	6278.85	6284.47	6289.90	7594.45	7591.92	7589.29	7586.65	7584.01	45
46	6269.42	6276.09	6281.92	6287.74	6293.57	7598.54	7596.01	7593.38	7590.74	7588.10	46
47	6272.09	6278.96	6284.99	6291.01	6297.04	7602.63	7600.10	7597.47	7594.83	7592.19	47
48	6274.76	6281.83	6288.06	6294.28	6300.51	7606.72	7604.19	7601.56	7598.92	7596.28	48
49	6277.43	6284.70	6291.13	6297.55	6303.98	7610.81	7608.28	7605.65	7603.01	7600.37	49
50	6280.10	6287.57	6294.20	6300.82	6307.45	7614.90	7612.37	7609.74	7607.10	7604.46	50
51	6282.77	6290.44	6297.27	6304.09	6310.92	7618.99	7616.46	7613.83	7611.19	7608.55	51
52	6285.44	6293.31	6300.34	6307.36	6314.39	7623.08	7620.55	7617.92	7615.28	7612.64	52
53	6288.11	6296.18	6303.41	6310.63	6317.86	7627.17	7624.64	7622.01	7619.37	7616.73	53
54	6290.78	6299.05	6306.48	6313.90	6321.33	7631.26	7628.73	7626.10	7623.46	7620.82	54
55	6293.45	6301.92	6309.55	6317.17	6324.80	7635.35	7632.82	7630.19	7627.55	7624.91	55
56	6296.12	6304.79	6312.62	6320.44	6328.27	7639.44	7636.91	7634.28	7631.64	7629.00	56
57	6298.79	6307.66	6315.69	6323.71	6331.74	7643.53	7641.00	7638.37	7635.73	7633.09	57
58	6301.46	6310.53	6318.76	6326.98	6335.21	7647.62	7645.09	7642.46	7639.82	7637.18	58
59	6304.13	6313.40	6321.83	6330.25	6338.68	7651.71	7649.18	7646.55	7643.91	7641.27	59
60	6306.80	6316.27	6324.90	6333.52	6342.15	7655.80	7653.27	7650.64	7648.00	7645.36	60

The Anti-Gulesmanian.

400	401	402	403	404	405	406	407	408	409	410	411
1	172,37.46	172,38.49	172,39.52	172,40.55	172,41.58	172,42.61	172,43.64	172,44.67	172,45.70	172,46.73	172,47.76
2	172,48.79	172,49.82	172,50.85	172,51.88	172,52.91	172,53.94	172,54.97	172,55.00	172,56.03	172,57.06	172,58.09
3	172,59.12	172,60.15	172,61.18	172,62.21	172,63.24	172,64.27	172,65.30	172,66.33	172,67.36	172,68.39	172,69.42
4	172,70.45	172,71.48	172,72.51	172,73.54	172,74.57	172,75.60	172,76.63	172,77.66	172,78.69	172,79.72	172,80.75
5	172,81.78	172,82.81	172,83.84	172,84.87	172,85.90	172,86.93	172,87.96	172,88.99	172,90.02	172,91.05	172,92.08
6	172,93.11	172,94.14	172,95.17	172,96.20	172,97.23	172,98.26	172,99.29	173,00.32	173,01.35	173,02.38	173,03.41
7	173,04.44	173,05.47	173,06.50	173,07.53	173,08.56	173,09.59	173,10.62	173,11.65	173,12.68	173,13.71	173,14.74
8	173,15.77	173,16.80	173,17.83	173,18.86	173,19.89	173,20.92	173,21.95	173,22.98	173,24.01	173,25.04	173,26.07
9	173,27.10	173,28.13	173,29.16	173,30.19	173,31.22	173,32.25	173,33.28	173,34.31	173,35.34	173,36.37	173,37.40
10	173,38.43	173,39.46	173,40.49	173,41.52	173,42.55	173,43.58	173,44.61	173,45.64	173,46.67	173,47.70	173,48.73
11	173,49.76	173,50.79	173,51.82	173,52.85	173,53.88	173,54.91	173,55.94	173,56.97	173,58.00	173,59.03	173,60.06
12	173,61.09	173,62.12	173,63.15	173,64.18	173,65.21	173,66.24	173,67.27	173,68.30	173,69.33	173,70.36	173,71.39
13	173,72.42	173,73.45	173,74.48	173,75.51	173,76.54	173,77.57	173,78.60	173,79.63	173,80.66	173,81.69	173,82.72
14	173,83.75	173,84.78	173,85.81	173,86.84	173,87.87	173,88.90	173,89.93	173,90.96	173,91.99	173,93.02	173,94.05
15	173,95.08	173,96.11	173,97.14	173,98.17	173,99.20	174,00.23	174,01.26	174,02.29	174,03.32	174,04.35	174,05.38
16	174,06.41	174,07.44	174,08.47	174,09.50	174,10.53	174,11.56	174,12.59	174,13.62	174,14.65	174,15.68	174,16.71
17	174,17.74	174,18.77	174,19.80	174,20.83	174,21.86	174,22.89	174,23.92	174,24.95	174,25.98	174,27.01	174,28.04
18	174,29.07	174,30.10	174,31.13	174,32.16	174,33.19	174,34.22	174,35.25	174,36.28	174,37.31	174,38.34	174,39.37
19	174,40.40	174,41.43	174,42.46	174,43.49	174,44.52	174,45.55	174,46.58	174,47.61	174,48.64	174,49.67	174,50.70
20	174,51.73	174,52.76	174,53.79	174,54.82	174,55.85	174,56.88	174,57.91	174,58.94	174,59.97	175,00.00	175,01.03
21	175,02.06	175,03.09	175,04.12	175,05.15	175,06.18	175,07.21	175,08.24	175,09.27	175,10.30	175,11.33	175,12.36
22	175,13.39	175,14.42	175,15.45	175,16.48	175,17.51	175,18.54	175,19.57	175,20.60	175,21.63	175,22.66	175,23.69
23	175,24.72	175,25.75	175,26.78	175,27.81	175,28.84	175,29.87	175,30.90	175,31.93	175,32.96	175,33.99	175,35.02
24	175,36.05	175,37.08	175,38.11	175,39.14	175,40.17	175,41.20	175,42.23	175,43.26	175,44.29	175,45.32	175,46.35
25	175,47.38	175,48.41	175,49.44	175,50.47	175,51.50	175,52.53	175,53.56	175,54.59	175,55.62	175,56.65	175,57.68
26	175,58.71	175,59.74	176,00.77	176,01.80	176,02.83	176,03.86	176,04.89	176,05.92	176,06.95	176,07.98	176,09.01
27	176,10.04	176,11.07	176,12.10	176,13.13	176,14.16	176,15.19	176,16.22	176,17.25	176,18.28	176,19.31	176,20.34
28	176,21.37	176,22.40	176,23.43	176,24.46	176,25.49	176,26.52	176,27.55	176,28.58	176,29.61	176,30.64	176,31.67
29	176,32.70	176,33.73	176,34.76	176,35.79	176,36.82	176,37.85	176,38.88	176,39.91	176,40.94	176,41.97	176,43.00
30	176,44.03	176,45.06	176,46.09	176,47.12	176,48.15	176,49.18	176,50.21	176,51.24	176,52.27	176,53.30	176,54.33
31	176,55.36	176,56.39	176,57.42	176,58.45	176,59.48	177,00.51	177,01.54	177,02.57	177,03.60	177,04.63	177,05.66
32	177,06.69	177,07.72	177,08.75	177,09.78	177,10.81	177,11.84	177,12.87	177,13.90	177,14.93	177,15.96	177,16.99
33	177,18.02	177,19.05	177,20.08	177,21.11	177,22.14	177,23.17	177,24.20	177,25.23	177,26.26	177,27.29	177,28.32
34	177,29.35	177,30.38	177,31.41	177,32.44	177,33.47	177,34.50	177,35.53	177,36.56	177,37.59	177,38.62	177,39.65
35	177,40.68	177,41.71	177,42.74	177,43.77	177,44.80	177,45.83	177,46.86	177,47.89	177,48.92	177,49.95	177,50.98
36	177,52.01	177,53.04	177,54.07	177,55.10	177,56.13	177,57.16	177,58.19	177,59.22	178,00.25	178,01.28	178,02.31
37	178,03.34	178,04.37	178,05.40	178,06.43	178,07.46	178,08.49	178,09.52	178,10.55	178,11.58	178,12.61	178,13.64
38	178,14.67	178,15.70	178,16.73	178,17.76	178,18.79	178,19.82	178,20.85	178,21.88	178,22.91	178,23.94	178,24.97
39	178,26.00	178,27.03	178,28.06	178,29.09	178,30.12	178,31.15	178,32.18	178,33.21	178,34.24	178,35.27	178,36.30
40	178,37.33	178,38.36	178,39.39	178,40.42	178,41.45	178,42.48	178,43.51	178,44.54	178,45.57	178,46.60	178,47.63
41	178,48.66	178,49.69	178,50.72	178,51.75	178,52.78	178,53.81	178,54.84	178,55.87	178,56.90	178,57.93	178,58.96
42	178,60.00	178,61.03	178,62.06	178,63.09	178,64.12	178,65.15	178,66.18	178,67.21	178,68.24	178,69.27	178,70.30
43	178,71.33	178,72.36	178,73.39	178,74.42	178,75.45	178,76.48	178,77.51	178,78.54	178,79.57	178,80.60	178,81.63
44	178,82.66	178,83.69	178,84.72	178,85.75	178,86.78	178,87.81	178,88.84	178,89.87	178,90.90	178,91.93	178,92.96
45	178,94.00	178,95.03	178,96.06	178,97.09	178,98.12	178,99.15	179,00.18	179,01.21	179,02.24	179,03.27	179,04.30
46	179,05.33	179,06.36	179,07.39	179,08.42	179,09.45	179,10.48	179,11.51	179,12.54	179,13.57	179,14.60	179,15.63
47	179,16.66	179,17.69	179,18.72	179,19.75	179,20.78	179,21.81	179,22.84	179,23.87	179,24.90	179,25.93	179,26.96
48	179,28.00	179,29.03	179,30.06	179,31.09	179,32.12	179,33.15	179,34.18	179,35.21	179,36.24	179,37.27	179,38.30
49	179,39.33	179,40.36	179,41.39	179,42.42	179,43.45	179,44.48	179,45.51	179,46.54	179,47.57	179,48.60	179,49.63
50	179,50.66	179,51.69	179,52.72	179,53.75	179,54.78	179,55.81	179,56.84	179,57.87	179,58.90	179,59.93	180,00.96
51	180,02.00	180,03.03	180,04.06	180,05.09	180,06.12	180,07.15	180,08.18	180,09.21	180,10.24	180,11.27	180,12.30
52	180,13.33	180,14.36	180,15.39	180,16.42	180,17.45	180,18.48	180,19.51	180,20.54	180,21.57	180,22.60	180,23.63
53	180,24.66	180,25.69	180,26.72	180,27.75	180,28.78	180,29.81	180,30.84	180,31.87	180,32.90	180,33.93	180,34.96
54	180,36.00	180,37.03	180,38.06	180,39.09	180,40.12	180,41.15	180,42.18	180,43.21	180,44.24	180,45.27	180,46.30
55	180,47.33	180,48.36	180,49.39	180,50.42	180,51.45	180,52.48	180,53.51	180,54.54	180,55.57	180,56.60	180,57.63
56	180,58.66	180,59.69	181,00.72	181,01.75	181,02.78	181,03.81	181,04.84	181,05.87	181,06.90	181,07.93	181,08.96
57	181,10.00	181,11.03	181,12.06	181,13.09	181,14.12	181,15.15	181,16.18	181,17.21	181,18.24	181,19.27	181,20.30
58	181,21.33	181,22.36	181,23.39	181,24.42	181,25.45	181,26.48	181,27.51	181,28.54	181,29.57	181,30.60	181,31.63
59	181,32.66	181,33.69	181,34.72	181,35.75	181,36.78	181,37.81	181,38.84	181,39.87	181,40.90	181,41.93	181,42.96
60	181,44.00	181,45.03	181,46.06	181,47.09	181,48.12	181,49.15	181,50.18	181,51.21	181,52.24	181,53.27	181,54.30

SMITHSONIAN TABLES

* From 30° 30' south line up to 45° south line.

TABLE VIII

CONVERSION OF RADIANs INTO ANGULAR MEASURE AND VICE VERSA

Conversion of Angular Measure into Radians.

n	Radians for n degrees	Radians for n arcminutes	Radians for n arcseconds	n	Radians for n degrees
1	0.01745 32925 2	0.00030 48781 1	0.00000 85401 4	61	1.06466 05437 2
2	0.03490 65850 4	0.00059 97562 2	0.00000 17080 7	62	1.08210 11257 4
3	0.05235 98775 6	0.00089 36343 3	0.00000 25621 1	63	1.09954 17077 6
4	0.06981 31700 8	0.00119 75124 4	0.00000 34162 5	64	1.11698 22897 8
5	0.08726 64625 0	0.00149 13905 5	0.00000 42703 8	65	1.13442 28717 0
6	0.10471 97551 2	0.00179 52686 6	0.00000 51244 2	66	1.15186 34537 2
7	0.12217 30476 4	0.00209 91467 7	0.00000 59785 6	67	1.16930 40357 4
8	0.13962 63401 6	0.00240 30248 8	0.00000 68326 9	68	1.18674 46177 6
9	0.15707 96326 8	0.00270 69029 9	0.00000 76867 3	69	1.20418 51997 8
10	0.17453 29252 0	0.00301 07810 0	0.00000 85408 7	70	1.22162 57817 0
11	0.19198 62177 2	0.00331 46591 1	0.00000 93949 1	71	1.23906 63637 2
12	0.20944 95102 4	0.00361 85372 2	0.00000 102490 5	72	1.25650 69457 4
13	0.22689 28027 6	0.00392 24153 3	0.00000 111031 8	73	1.27394 75277 6
14	0.24435 60952 8	0.00422 62934 4	0.00000 119572 2	74	1.29138 81097 8
15	0.26180 93878 0	0.00453 01715 5	0.00000 128113 6	75	1.30882 86917 0
16	0.27926 26803 2	0.00483 40496 6	0.00000 136654 9	76	1.32626 92737 2
17	0.29672 59728 4	0.00513 79277 7	0.00000 145195 3	77	1.34370 98557 4
18	0.31417 92653 6	0.00544 18058 8	0.00000 153736 7	78	1.36114 10437 6
19	0.33163 25578 8	0.00574 56839 9	0.00000 162277 1	79	1.37858 11019 8
20	0.34909 58504 0	0.00605 95620 0	0.00000 170818 5	80	1.39602 11601 0
21	0.36654 91429 2	0.00635 34401 1	0.00000 179359 9	81	1.41346 12183 2
22	0.38400 24354 4	0.00665 73182 2	0.00000 187900 3	82	1.43090 12765 4
23	0.40146 57279 6	0.00696 11963 3	0.00000 196441 7	83	1.44834 13347 6
24	0.41891 90204 8	0.00726 50744 4	0.00000 204982 1	84	1.46578 13929 8
25	0.43637 23130 0	0.00757 89525 5	0.00000 213523 5	85	1.48322 14511 0
26	0.45382 56055 2	0.00787 28306 6	0.00000 222064 9	86	1.50066 15093 2
27	0.47128 88980 4	0.00818 67087 7	0.00000 230605 3	87	1.51810 15675 4
28	0.48873 21905 6	0.00848 10588 8	0.00000 239146 7	88	1.53554 16257 6
29	0.50619 54830 8	0.00879 49369 9	0.00000 247687 1	89	1.55298 16839 8
30	0.52364 87756 0	0.00909 88150 0	0.00000 256228 5	90	1.57042 17421 0
31	0.54110 20681 2	0.00940 26931 1	0.00000 264769 9	91	1.58786 18003 2
32	0.55855 53606 4	0.00970 65712 2	0.00000 273310 3	92	1.60530 18585 4
33	0.57601 86531 6	0.01001 04493 3	0.00000 281851 7	93	1.62274 19167 6
34	0.59346 21456 8	0.01031 43274 4	0.00000 290392 1	94	1.64018 19749 8
35	0.61092 54382 0	0.01062 82055 5	0.00000 298933 5	95	1.65762 20331 0
36	0.62837 87307 2	0.01092 12086 6	0.00000 307474 9	96	1.67506 20913 2
37	0.64583 20232 4	0.01123 50847 7	0.00000 316015 3	97	1.69250 21495 4
38	0.66328 53157 6	0.01153 89628 8	0.00000 324556 7	98	1.70994 22077 6
39	0.68074 86082 8	0.01184 28409 9	0.00000 333097 1	99	1.72738 22659 8
40	0.69819 21008 0	0.01214 67190 0	0.00000 341638 5	100	1.74482 23241 0
41	0.71565 53933 2	0.01245 05971 1	0.00000 350179 9	101	1.76226 23823 2
42	0.73310 86858 4	0.01275 44752 2	0.00000 358720 3	102	1.77970 24405 4
43	0.75056 21783 6	0.01306 83533 3	0.00000 367261 7	103	1.79714 24987 6
44	0.76801 54708 8	0.01336 22314 4	0.00000 375802 1	104	1.81458 25569 8
45	0.78547 87634 0	0.01367 61095 5	0.00000 384343 5	105	1.83202 26151 0
46	0.80292 20559 2	0.01397 99876 6	0.00000 392884 9	106	1.84946 26733 2
47	0.82038 53484 4	0.01428 38657 7	0.00000 401425 3	107	1.86690 27315 4
48	0.83783 86409 6	0.01459 77438 8	0.00000 409966 7	108	1.88434 27897 6
49	0.85529 21334 8	0.01489 16219 9	0.00000 418507 1	109	1.90178 28479 8
50	0.87274 54260 0	0.01520 55000 0	0.00000 427048 5	110	1.91922 29061 0
51	0.89020 87185 2	0.01550 93781 1	0.00000 435589 9	111	1.93666 29643 2
52	0.90765 20110 4	0.01581 32562 2	0.00000 444130 3	112	1.95410 30225 4
53	0.92511 53035 6	0.01611 71343 3	0.00000 452671 7	113	1.97154 30807 6
54	0.94256 85960 8	0.01642 10124 4	0.00000 461212 1	114	1.98898 31389 8
55	0.96002 21886 0	0.01672 48905 5	0.00000 469753 5	115	2.00642 31971 0
56	0.97747 54811 2	0.01703 87686 6	0.00000 478294 9	116	2.02386 32553 2
57	0.99493 87736 4	0.01733 26467 7	0.00000 486835 3	117	2.04130 33135 4
58	1.01238 20661 6	0.01764 65248 8	0.00000 495376 7	118	2.05874 33717 6
59	1.02984 53586 8	0.01794 10409 9	0.00000 503917 1	119	2.07618 34299 8
60	1.04729 86512 0	0.01825 49190 0	0.00000 512458 5	120	2.09362 34881 0

Conversion of Radians into Angular Measure

Radix	Angle			Radix	Angle		
	$^{\circ}$	$'$	$''$		$^{\circ}$	$'$	$''$
0.1	05	43	30.29663 37	0.006	0	29	37.58883 75
0.2	11	27	32.09123 04	.007	20	24	04.85304 37
0.3	17	11	30.41187 31	.008	27	30.11845 60	
0.4	21	55	05.35219 88	.009	30	30.29325 69	
0.5	28	38	52.30412 15	0.010	0	34	22.61807 25
0.6	31	22	35.88327 83	.0010	00	39.26129 05	
0.7	39	06	25.30437 30	.0012	00	41.25291 12	
0.8	45	50	11.34109 77	.0013	01	01.37541 19	
0.9	51	31	38.12512 44	.0014	01	22.30204 25	
1.00	57	17	41.80641 71	0.0015	0	01	43.13249 31
0.01	00	21	22.00900 25	.0016	02	02.77388 37	
0.02	00	40	45.26912 40	.0017	02	24.28540 44	
0.03	01	01	07.03118 74	.0018	02	45.61182 50	
0.04	02	17	30.20221 59	.0019	03	05.63824 56	
0.05	02	51	53.20043 23	0.00100	0	01	26.26480 625
0.06	03	20	13.38847 38	.00101	00	02.00250 806	
0.07	03	00	38.53043 74	.00102	00	03.12529 612	
0.08	03	45	01.18349 03	.00103	00	04.18704 419	
0.09	05	09	24.83129 22	.00104	00	05.23959 225	
0.10	05	43	30.29663 37	0.00105	0	00	06.31224 031
0.101	00	01	20.30900 62	.00106	00	00	12.37288 847
0.102	00	05	52.52851 25	.00107	00	01	14.41853 614
0.103	00	10	18.70141 87	.00108	00	00	16.20118 250
0.104	00	15	45.07622 50	.00109	00	00	18.26381 256
0.105	00	17	11.12104 12	0.00110	0	00	20.62618 052

MEMBER TITLES

Numerical Constants

$\log_{10} 2 = 0.3010$	$\log_{10} 6 = 0.7782$	$\log_{10} 10 = 1.0000$	$\log_{10} 30 = 1.4771$	$\log_{10} 100 = 2.0000$	$\log_{10} 300 = 2.4771$	$\log_{10} 1000 = 3.0000$	$\log_{10} 3000 = 3.4771$
$\log_{10} 20 = 0.6990$	$\log_{10} 7 = 0.8451$	$\log_{10} 11 = 1.0414$	$\log_{10} 40 = 1.6021$	$\log_{10} 200 = 2.3010$	$\log_{10} 500 = 2.6990$	$\log_{10} 1000 = 3.0000$	$\log_{10} 2000 = 3.3010$
$\log_{10} 3 = 0.4771$	$\log_{10} 8 = 0.9031$	$\log_{10} 12 = 1.0792$	$\log_{10} 50 = 1.6990$	$\log_{10} 250 = 2.3979$	$\log_{10} 750 = 2.8755$	$\log_{10} 1500 = 3.1761$	$\log_{10} 3000 = 3.4771$
$\log_{10} 4 = 0.6021$	$\log_{10} 9 = 0.9542$	$\log_{10} 15 = 1.1761$	$\log_{10} 70 = 1.8451$	$\log_{10} 350 = 2.5441$	$\log_{10} 1050 = 3.0212$	$\log_{10} 2100 = 3.3222$	$\log_{10} 4200 = 3.6232$
$\log_{10} 5 = 0.6990$	$\log_{10} 10 = 1.0000$	$\log_{10} 20 = 1.3010$	$\log_{10} 100 = 2.0000$	$\log_{10} 500 = 2.6990$	$\log_{10} 1000 = 3.0000$	$\log_{10} 2000 = 3.3010$	$\log_{10} 4000 = 3.6021$
$\log_{10} 6 = 0.7782$	$\log_{10} 12 = 1.0792$	$\log_{10} 25 = 1.3979$	$\log_{10} 125 = 2.0969$	$\log_{10} 625 = 2.7959$	$\log_{10} 3125 = 3.4949$	$\log_{10} 15625 = 4.1939$	$\log_{10} 78125 = 4.8929$
$\log_{10} 7 = 0.8451$	$\log_{10} 14 = 1.1461$	$\log_{10} 35 = 1.5441$	$\log_{10} 175 = 2.2431$	$\log_{10} 875 = 2.9421$	$\log_{10} 4375 = 3.6411$	$\log_{10} 21875 = 4.3401$	$\log_{10} 109375 = 5.0391$
$\log_{10} 8 = 0.9031$	$\log_{10} 16 = 1.2041$	$\log_{10} 40 = 1.6021$	$\log_{10} 200 = 2.3010$	$\log_{10} 1000 = 3.0000$	$\log_{10} 5000 = 3.6990$	$\log_{10} 25000 = 4.3979$	$\log_{10} 125000 = 5.0969$
$\log_{10} 9 = 0.9542$	$\log_{10} 18 = 1.2552$	$\log_{10} 45 = 1.6532$	$\log_{10} 225 = 2.3522$	$\log_{10} 1125 = 3.0512$	$\log_{10} 5625 = 3.7502$	$\log_{10} 28125 = 4.4492$	$\log_{10} 140625 = 5.1482$
$\log_{10} 10 = 1.0000$	$\log_{10} 20 = 1.3010$	$\log_{10} 50 = 1.6990$	$\log_{10} 250 = 2.3979$	$\log_{10} 1250 = 3.0969$	$\log_{10} 6250 = 3.7959$	$\log_{10} 31250 = 4.4949$	$\log_{10} 156250 = 5.1939$
$\log_{10} 11 = 1.0414$	$\log_{10} 22 = 1.3424$	$\log_{10} 55 = 1.7394$	$\log_{10} 275 = 2.4384$	$\log_{10} 1375 = 3.1374$	$\log_{10} 6875 = 3.8364$	$\log_{10} 34375 = 4.5354$	$\log_{10} 171875 = 5.2344$
$\log_{10} 12 = 1.0792$	$\log_{10} 24 = 1.3802$	$\log_{10} 60 = 1.7782$	$\log_{10} 300 = 2.4771$	$\log_{10} 1500 = 3.1761$	$\log_{10} 7500 = 3.8751$	$\log_{10} 37500 = 4.5741$	$\log_{10} 187500 = 5.2731$
$\log_{10} 13 = 1.1133$	$\log_{10} 26 = 1.4133$	$\log_{10} 65 = 1.8133$	$\log_{10} 325 = 2.5133$	$\log_{10} 1625 = 3.2133$	$\log_{10} 8125 = 3.9123$	$\log_{10} 40625 = 4.6113$	$\log_{10} 203125 = 5.3123$
$\log_{10} 14 = 1.1461$	$\log_{10} 28 = 1.4461$	$\log_{10} 70 = 1.8451$	$\log_{10} 350 = 2.5441$	$\log_{10} 1750 = 3.2441$	$\log_{10} 8750 = 3.9431$	$\log_{10} 43750 = 4.6431$	$\log_{10} 218750 = 5.3431$
$\log_{10} 15 = 1.1761$	$\log_{10} 30 = 1.4771$	$\log_{10} 75 = 1.8761$	$\log_{10} 375 = 2.5761$	$\log_{10} 1875 = 3.2761$	$\log_{10} 9375 = 3.9751$	$\log_{10} 46875 = 4.6751$	$\log_{10} 234375 = 5.3751$
$\log_{10} 16 = 1.2041$	$\log_{10} 32 = 1.5051$	$\log_{10} 80 = 1.9031$	$\log_{10} 400 = 2.6021$	$\log_{10} 2000 = 3.3010$	$\log_{10} 10000 = 4.0000$	$\log_{10} 50000 = 4.6990$	$\log_{10} 250000 = 5.3979$
$\log_{10} 17 = 1.2304$	$\log_{10} 34 = 1.5304$	$\log_{10} 85 = 1.9274$	$\log_{10} 425 = 2.6274$	$\log_{10} 2125 = 3.3274$	$\log_{10} 10625 = 4.0274$	$\log_{10} 53125 = 4.7264$	$\log_{10} 265625 = 5.4264$
$\log_{10} 18 = 1.2552$	$\log_{10} 36 = 1.5552$	$\log_{10} 90 = 1.9532$	$\log_{10} 450 = 2.6532$	$\log_{10} 2250 = 3.3532$	$\log_{10} 11250 = 4.0532$	$\log_{10} 56250 = 4.7532$	$\log_{10} 281250 = 5.4532$
$\log_{10} 19 = 1.2792$	$\log_{10} 3$						

HEALTHY-LOOKING TABLE